



# MARCH 2013 WATER UTILITY FINANCIAL PLAN AND RATES STUDY FINAL REPORT

City of  
**FRESNO**  
WATER DIVISION

Prepared by

**MUNICIPAL  
FINANCIAL  
SERVICES**



D R A F T

# Water Utility Financial Plan and Rates Study

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Prepared for  
City of Fresno, California  
March 2013

This is a draft and is not intended to be a final representation  
of the work done or recommendations made by Municipal Financial Services.  
It should not be relied upon; consult the final report.



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## List of Abbreviations

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CIP	Capital Improvement Program
CVP	Central Valley Project
FY	Fiscal Year
FY14	Fiscal Year from July 1, 2013 to June 30, 2014
gpd	gallons per day
GWMP	Groundwater Management Plan
HCF	hundred cubic feet
HTE	Hansen Technology Enterprises
mgd	million gallons per day
PUD	Planned Unit Development
UAC	Utility Advisory Committee
UWMP	Urban Water Management Plan

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# Executive Summary

## Purpose of Study

The City has not increased water rates for unmetered residential accounts since September 1, 2008. The last rate increase in 2008 represented the culmination of three rate increases over a 17-month period which raised the average monthly single family water bill (for a residential 8000 square foot lot with no water meter) from \$16.02 to \$27.43 (an increase of approximately 71 percent).

Since that time, the City has made significant changes to its water distribution operations by installing water meters on residential service laterals and implementing consumption-based water rates for residential water use. Based on the current water rates for metered residential accounts (adopted in March 2010), the average monthly single family water bill for an account with a 1-inch meter and 18 hundred cubic feet of water use (14,100 gallons) is \$24.49.

The City is also continuing to pursue the goals established in the Fresno Area Regional Groundwater Management Plan adopted in 2006, maintain its system of water production wells, construct new surface water treatment facilities, and repair and replace aging subsurface water transmission and distribution lines.

The water rate study serves multiple purposes – 1) document the development of water rates to be adopted for the four year period FY 14 - FY 17 that demonstrate the ability to service additional debt for funding capital project expenditures; 2) evaluate the impact of conversion of residential accounts from unmetered to metered connections; 3) evaluate the impact of projected water conservation; and 4) evaluate the impact of establishing rates based on cost of service allocation assumptions.

Total expenditures funded by rates for FY 14 – FY 21 are projected to be almost \$1 billion (approximately \$976,000,000). Approximately 47% of total expenditures are for operations; the remaining is for pay-as-you-go capital expenditures and debt service.

Revenues from flat, meter service and quantity charges currently generate approximately 94% of all revenue for the water enterprise. Revenues from charges for FY 11 were approximately \$61.5 million. Revenues from charges for FY 12 decreased substantially to approximately \$57.0 million and rebounded slightly in FY13 to approximately \$58.8 million. Reduction in revenues from the FY11 level is due primarily to a reduction in revenue from water sales.

Without rate increases, total projected revenues from FY 14 – FY 21 would be approximately \$440 million. With the rate increases projected in this study, total projected revenues from FY 14 – FY 21 are approximately \$914 million.

## Current Water Rates

The current rate structure has the rate categories and water rates shown in the table below. The current water rates have been in effect since 2008 (except for the adoption of a new rate for residential water use adopted in 2010).

Table ES-1. City of Fresno Current Water Rates							
Potable Water Services <sup>1</sup>	Non-residential				Other Services <sup>1</sup>		
	Residential	Domestic	Irrigation	Private Fire Service			
<b>Meter and Flat Rates</b>							
<u>Unmetered</u> <sup>2</sup>				<i>Travel Meters, \$/month</i>			
Single Family, \$/month							
First 6000 sq ft lot size	\$22.87				<i>Backflow Prevention Program, \$/month</i>		
Each additional 100 sq ft lot size	\$0.23				Double-check		
Senior Citizen, \$/month					and/or		
First 6000 sq ft lot size	\$20.56				Pressure		
Each additional 100 sq ft lot size	\$0.20				Reduced Pressure		
<u>Metered</u>				Vacuum			
Meter Charge, \$/month					Breaker		
3/4-inch or smaller	\$10.03	\$10.03	\$10.03		<u>Assemblies</u>		
1-inch	\$13.51	\$13.51	\$13.51	\$23.94	3/4"	\$6.70	\$6.70
1-1/2-inch	\$18.89	\$18.89	\$18.89	\$23.94	1"	\$6.70	\$8.92
2-inch	\$27.09	\$27.09	\$27.09	\$23.94	1-1/4"	\$8.92	\$11.12
3-inch		\$45.07	\$45.07	\$23.94	1-1/2"	\$8.92	\$13.42
4-inch		\$63.03	\$63.03	\$23.94	2"	\$8.92	\$13.42
6-inch		\$99.01	\$99.01	\$35.94	2-1/2"	\$17.83	\$17.83
8-inch		\$152.96	\$152.96	\$47.92	3"	\$17.83	\$17.83
10-inch		\$179.83	\$179.83	\$59.90	4"	\$17.83	\$17.83
12-inch				\$71.88	6"	\$26.73	\$26.73
<i>Quantity Charge, \$/HCF</i>					8"	\$26.73	\$35.65
Single Family Residential	\$0.610				10"	\$44.57	\$53.48
Customers Other Than Single Family Residential		\$0.745	\$0.745				
<i>Fluoridated Water Program Rates, \$/HCF</i>	\$4.52	\$4.52	\$4.52				
Notes:							
1 All water rates are from pp 154-159 of the Master Fee Schedule Amendment #489 (March 2010).							
Water rates for penalties, service work, deposits and the other services listed below are not included in the table and are not evaluated in the rate study.							
▪ Temporary water service							

Water rates for penalties, service work, deposits and the other services listed below are not included in the table and are not evaluated in the rate study.

- Additional charges for living units, air conditioning units or refrigeration units
- Additional charges for discharge water into a dry well
- Temporary water service
- Water drawn from a fire hydrant
- Private wells
- Well Drilling Permit and Examination
- Well Inspection, per well site
- Irrigation of City-Owned Property, Not Metered

## Utility Advisory Committee Final Report, Session 2010 – 2011

The 2010-2011 session of the Utility Advisory Committee (UAC) was reestablished in October 2009 and was tasked with determining a 5-year plan for fiscal years 2012 – 2016 while taking into account the critical importance of recommending a sound financial plan that protects both the integrity of the utility system and the rate payers. Following 12 months of diligent study of materials provided by City staff and independent consultants, the UAC agreed on a water rate adjustment recommendation based on 9% annual average increase in revenue from charges over five years. The three main options considered by the UAC are summarized in the table below.

**Table ES-2. Water Rate Options Considered by the UAC**

	Percent Increase in Revenue from Rates vs FY 11					Average Annual
	FY 12	FY 13	FY 14	FY 15	FY 16	
<b>UAC Final Report Option 1</b>						
\$8M Annual Pipeline Replacement	15%	15%	5%	5%	5%	9%
<b>Option 2 - Current Budget</b>						
No Metro Plan	2%	2%	2%	2%	2%	2%
<b>Option 3 - Metro Plan w/</b>						
\$19M Avg Annual Pipeline Replacement	23%	23%	23%	10%	3%	16%

Option 1 was recommended by the UAC. Note that the options compared the annual increase in **revenue** from three rates - the account charge (flat residential rates), and the meter and quantity charges. The annual increase in **revenue** was compared because the annual percent increase in the **rates** or the annual percent increase in typical **bills** was too complicated to compare for each option. The easiest way to compare options was to compare the amount of revenue to be generated by the rates for each option. The annual percent increase in the rates for all the meter charges and quantity charges varied for each charge due to the use of cost of service allocation methodology to develop rates. The annual percent increase in typical bills varied due to projected changes in water use and growth for each customer class.

## Update of the Water Rates Recommendation from the Utility Advisory Committee

The level of rate increases shown in this report are based on an update of those recommended by the Utility Advisory Committee in its *Final Report and Recommendation to the Mayor, City Council and City Manager* dated March 31, 2011. The most significant updates were based upon an increase in the level of capital expenditures to be included in the rate model and a large decline in revenues from flat, meter service and quantity charges during FY 11 and FY 12. The updates included changes in the following data used to develop rates:

- FY 11 – FY 21 number of accounts and meters
- FY 11 – FY 21 amount of water use
- Projected timing of conversions from unmetered to metered residential accounts
- Actual FY 11 and FY 12 revenue from flat, meter service and quantity charges
- Projected capital expenditures
- Projected operating expenditures
- Projected debt service
- Projected non-operating revenues

All of the updates listed above were incorporated into the rate model. The resulting five-year, projected annual average percentage increase in revenues from flat, meter service and quantity charges is approximately 12%, higher than that recommended by the Utility Advisory Committee. The projected residential monthly bills are initially lower than those based on recommendations by the UAC until FY 15 at which point the residential monthly bills are greater than those based on recommendations by the Utility Advisory Committee.

After incorporating these updates into the rate model, the resulting rates and impact on monthly bills were presented to the Mayor and City Manager for review and comment. The rates and impact on monthly bills are described in this report are similar to those that were presented to the Mayor and City Manager.

## Projected Capital Improvement Program Expenditures and Funding

The City has developed a comprehensive Water Capital Improvement Program (CIP) to address current and future water system needs. These projected costs include a three percent annual inflation factor due to anticipated increases in construction costs over time. This inflation rate is a conservative estimate and ensures that the City has adequate resources reserved to complete the necessary projects.

CIP project expenditures planned for FY 13 through FY 17 total approximately \$410 million and are summarized in the following categories along with the total expenditures for each category:

- SE Surface Water Treatment Facility (SWTF)- \$226.6M
- Water Main Renewal- \$55.3M
- SE SWTF Transmission Pipelines- \$49.6M
- Water Well Construction- \$32.8M
- T4 Downtown Tank & Booster Pump Station-\$9.7M
- City Recharge Basins-\$7.1M
- Water Main Extensions-\$6.4M
- Downtown Water System Upgrades- \$4.1M
- 19 other water capital projects- \$17.9M

The CIP is to be funded through a combination of system revenues and bond financing. Approximately 79% (\$325 million) of the \$410 million is projected to be funded by debt financing. The remaining expenditures are funded from “pay-as-you-go” revenues from water rates. The Division will continue to pursue grant and low-interest loan opportunities, but for purposes of this study, no revenues were assumed from these sources.

Annual CIP expenditures for FY 13 through FY 17 funded by new debt are shown in the figure below.

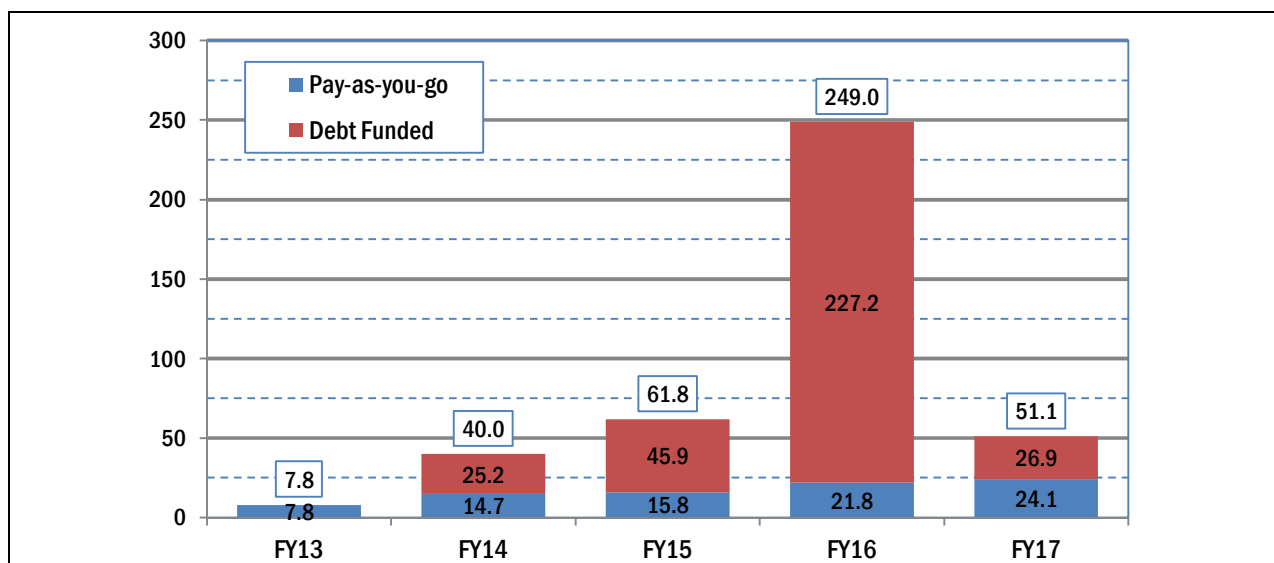


Figure ES-1. Capital Expenditures and New Debt Service, FY 13 – FY 17 (\$'000,000)

## Projected Cash Flow and Debt Service Coverage

Annual expenditures, revenues and cash flow (represented by the ending balance for the enterprise fund) are shown in the figure below. Also shown at the bottom line of the figure are the annual values of the debt service coverage ratio and the annual percent increase in the average monthly bill for single family customers with a 1-inch meter connection and average annual water use of 18 hundred cubic feet.

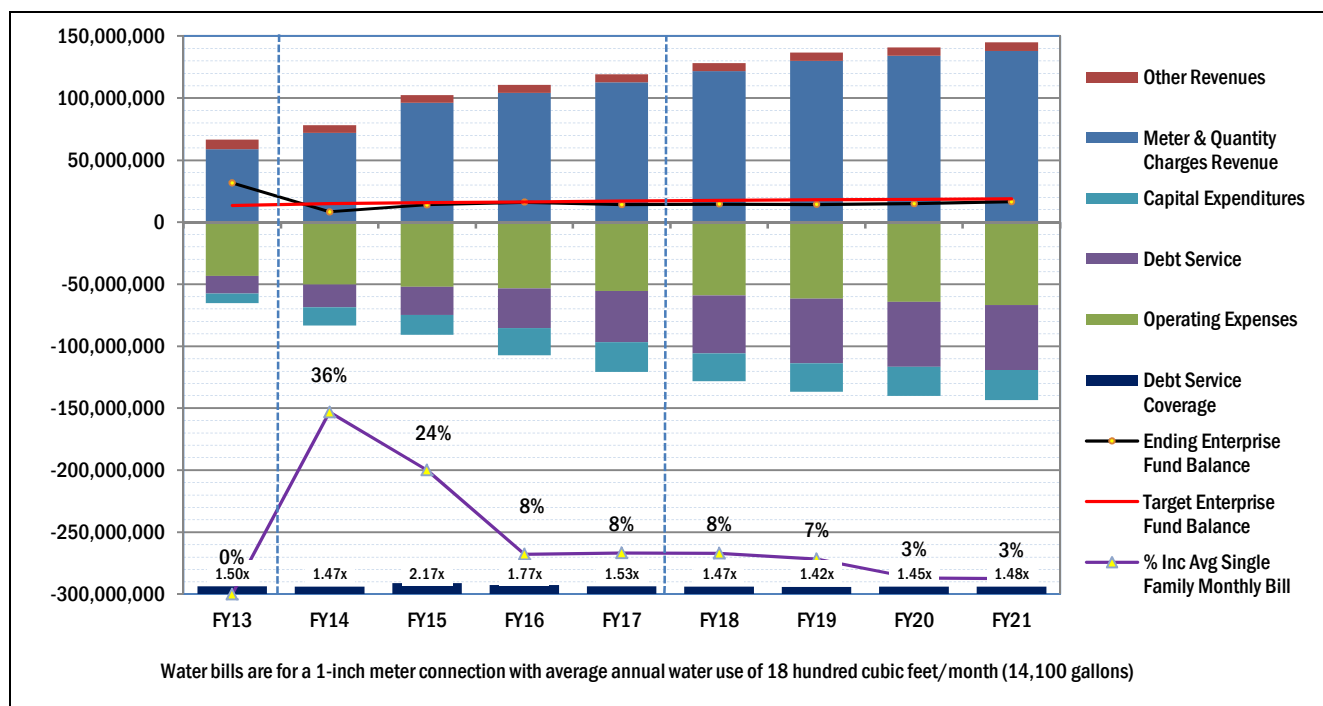


Figure ES-2. Cash Flow, Debt Service Coverage and % Increase in Single Family Bills, FY 13 – FY 21

## Projected Water Rates

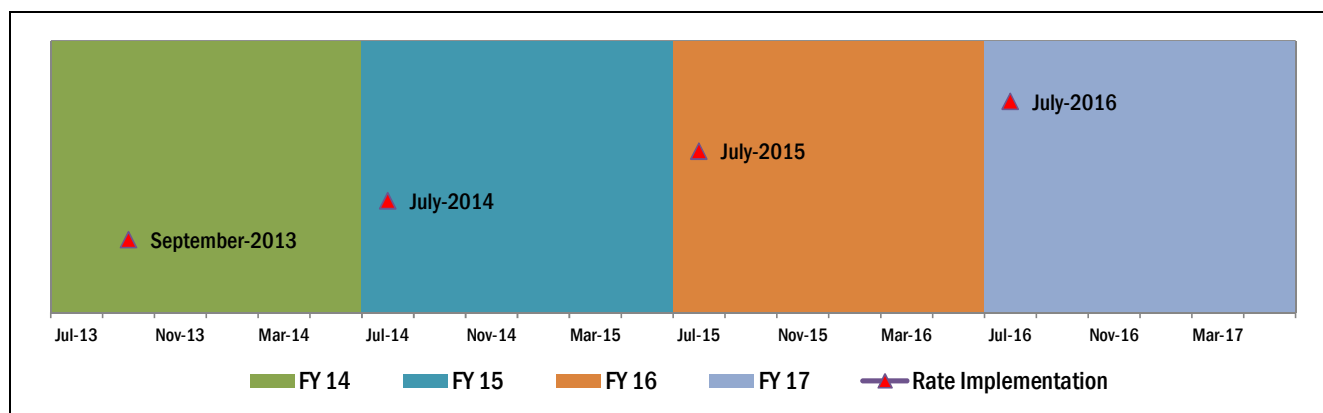
Current (actual) rates, rates based on the UAC recommendation and rates based on an update of the UAC recommendation are shown in the table below. Rates based on update of the UAC recommendation (in the upper half of the table) are the rates used to develop single family bills shown in the previous figure. The list of rates includes only those applicable to the majority of single family customers and does not include residential flat charges. A complete list of rates to be adopted is included in Section 4.

**Table ES-3. Rates Applicable to Single Family Customers**

Update of UAC Final Report													
Item	Actual FY11	Actual FY12	Current FY13	Projected				Actual FY12	Current FY13	Projected			
				FY14	FY15	FY16	FY17			FY14	FY15	FY16	FY17
Meter Charges													
Residential and Domestic													
3/4-inch or smaller	\$10.03	\$10.03	\$10.03	\$10.50	\$13.00	\$14.00	\$15.00	0%	0%	5%	24%	8%	7%
1-inch	\$13.51	\$13.51	\$13.51	\$13.30	\$16.40	\$17.70	\$19.00	0%	0%	-2%	23%	8%	7%
Quantity Charges													
All Classes	\$0.745	\$0.745	\$0.745	1.11	1.39	1.50	1.63	0%	0%	49%	25%	8%	9%
Residential, Current	\$0.610	\$0.610	\$0.610					0%	0%	182%			
UAC Final Report Option 1													
Item	Actual FY11	Projected						Projected					
		FY12	FY13	FY14	FY15	FY16	FY17	FY12	FY13	FY14	FY15	FY16	FY17
Meter Charges													
Residential and Domestic													
3/4-inch or smaller	\$10.03	\$11.54	\$13.19	\$13.75	\$14.32	\$14.93	\$15.56	15%	14%	4%	4%	4%	4%
1-inch	\$13.51	\$13.65	\$15.60	\$16.26	\$16.95	\$17.67	\$18.42	1%	14%	4%	4%	4%	4%
Quantity Charges													
All Classes	\$0.745	\$0.85	\$0.99	\$1.04	\$1.08	\$1.13	\$1.18	14%	17%	5%	4%	5%	4%
Residential, Current	\$0.610							39%					

## Rate Increase Implementation Schedule

The City's FY 14 fiscal year begins on July 1, 2013 (and ends June 30, 2014). The first rate increase is planned to be effective during September 2013 (about three months into FY 14). For FY 15, FY 16 and FY 17, implementation of the increase in rates is July 1 of each year. Effective dates for annual rate increases for FY 14 – FY 17 are shown in the figure below.



**Figure ES-3. Implementation of Annual Rate Increases, FY 13 – FY 17**



## Projected Single Family Bills

Average monthly bills for single family customers are shown below based on current rates, rates based on the UAC recommendation and rates based on an update of the UAC recommendation.

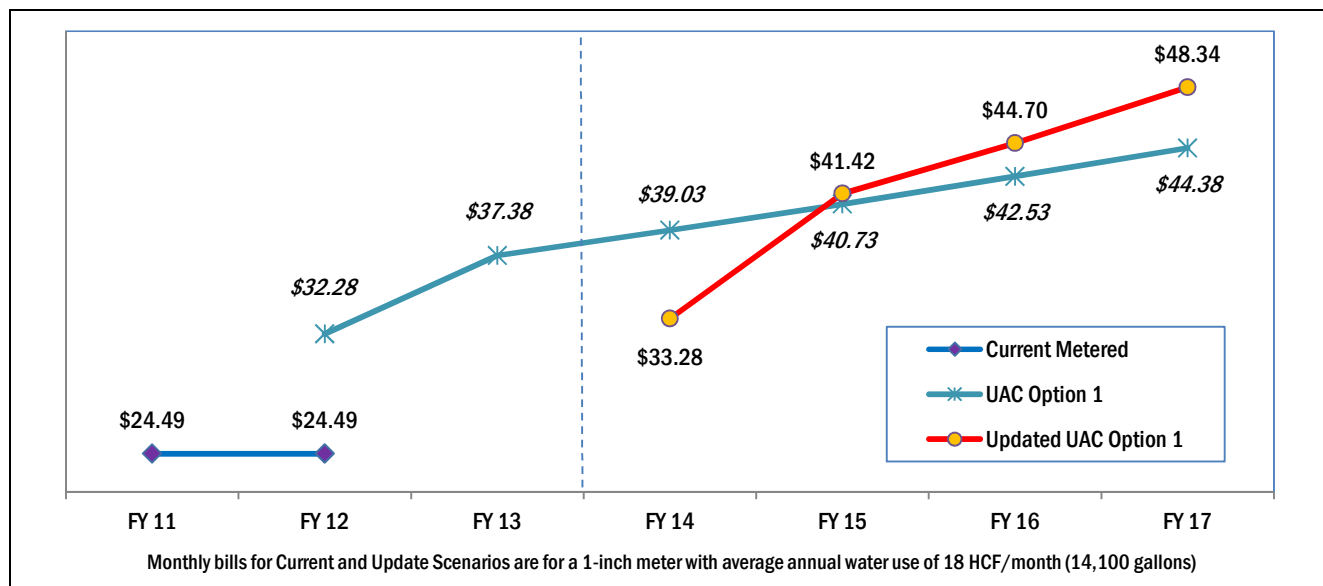


Figure ES-4. Comparison of Single Family Bills Based on Different Rates, FY 11 – FY 17

## Rate Recommendations and Significant Changes to the Rate Structure

Recommendations resulting from our evaluation are discussed in the following paragraphs.

**Recommendation 1.** It is recommended that the City adopt rate increases shown in this report for FY 14 – FY 17 which are based on an update of UAC water rate recommendations.

**Recommendation 2.** It is recommended that the City adopt the changes in the rate structure that are integral to the rate increases: a ) replace the two different quantity charges with a single quantity charge applicable to all customers; and b) create a separate set of meter charges for irrigation meters.

In addition to the recommendation listed above, there are other significant changes in the rate structure that are noted below.

**Allowance for Senior Citizens.** The cost of service based meter charges and quantity charges for FY 13 onward do not have an allowance for senior citizen customers. The allowance for senior citizen customers included in the current and projected residential flat charges will phase out when all residential customers are converted to metered billing.

**Other Miscellaneous Residential Charges.** Currently there are other miscellaneous charges that are applicable to residential customers with flat charges. The other charges are for Charges for Additional Living Units, Air Conditioning / Refrigeration Units, Discharge Water into a Dry Well, Water Drawn from a Fire Hydrant, and Private Wells. These charges should be reviewed and phased out if they become obsolete due to the implementation of bills based on metered water use.

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## Section 1

# Background & Objectives

## 1.1 Background

The water rate study serves multiple purposes – 1) document the development of water rates to be adopted for the four year period FY 14 - FY 17 that demonstrate the ability to service additional debt for funding capital project expenditures; 2) evaluate the impact of conversion of residential accounts from unmetered to metered connections; 3) evaluate the impact of projected water conservation; and 4) evaluate the impact of establishing rates based on cost of service allocation assumptions.

## 1.2 Current Water Rates

The current rate structure has the rate categories and water rates shown in the table below. The current water rates have been in effect since 2008 (except for the adoption of a new rate for residential water use adopted in 2010).

**Table 1-1. Current City of Fresno Water Rates**

Potable Water Services <sup>1</sup>	Non-residential				Other Services <sup>1</sup>
	Residential	Domestic	Irrigation	Private Fire Service	
<i>Meter and Flat Rates</i>					
<u>Unmetered<sup>2</sup></u>					<i>Travel Meters, \$/month</i> \$45.07
Single Family, \$/month					
First 6000 sq ft lot size	\$22.87				
Each additional 100 sq ft lot size	\$0.23				
Senior Citizen, \$/month					
First 6000 sq ft lot size	\$20.56				
Each additional 100 sq ft lot size	\$0.20				
<u>Metered</u>					
Meter Charge, \$/month					
3/4-inch or smaller	\$10.03	\$10.03	\$10.03		3/4" \$6.70 \$6.70
1-inch	\$13.51	\$13.51	\$13.51	\$23.94	1" \$6.70 \$8.92
1-1/2-inch	\$18.89	\$18.89	\$18.89	\$23.94	1-1/4" \$8.92 \$11.12
2-inch	\$27.09	\$27.09	\$27.09	\$23.94	1-1/2" \$8.92 \$13.42
3-inch		\$45.07	\$45.07	\$23.94	2" \$8.92 \$13.42
4-inch		\$63.03	\$63.03	\$23.94	2-1/2" \$17.83 \$17.83
6-inch		\$99.01	\$99.01	\$35.94	3" \$17.83 \$17.83
8-inch		\$152.96	\$152.96	\$47.92	4" \$17.83 \$17.83
10-inch		\$179.83	\$179.83	\$59.90	6" \$26.73 \$26.73
12-inch				\$71.88	8" \$26.73 \$35.65
					10" \$44.57 \$53.48
<i>Quantity Charge, \$/HCF</i>					
Single Family Residential	\$0.610				
Customers Other Than Single Family Residential		\$0.745	\$0.745		
<i>Fluoridated Water Program Rates, \$/HCF</i>	\$4.52	\$4.52	\$4.52		
<b>Notes:</b>					
1 All water rates are from pp 154-159 of the Master Fee Schedule Amendment #489 (March 2010).					
Water rates for penalties, service work, deposits and the other services listed below are not included in the table and are not evaluated in the rate study.					
<ul style="list-style-type: none"> <li>Temporary water service</li> <li>Well Inspection, per well site</li> <li>Well Drilling Permit and Examination</li> <li>Irrigation of City-Owned Property, Not Metered</li> <li>Charges for Additional Living Units, Air Conditioning/Refrigeration Units, Discharge Water into a Dry Well, Water Drawn from a Fire Hydrant, and Private Wells</li> </ul>					
2 The Master Fee Schedule states "Flat rate water service charges for single family residential customers shall sunset as of January 1, 2013 or until all single family residences are metered, whichever comes first."					

Water rates for penalties, service work, deposits and the other services listed below are not included in the table and are not evaluated in the rate study.

- Additional charges for living units, air conditioning units or refrigeration units
- Additional charges for discharge water into a dry well
- Temporary water service
- Water drawn from a fire hydrant
- Private wells
- Well Drilling Permit and Examination
- Well Inspection, per well site
- Irrigation of City-Owned Property, Not Metered

The Master Fee Schedule states "Flat rate water service charges for single family residential customers shall sunset as of January 1, 2013 or until all single family residences are metered, whichever comes first." The Master Fee Schedule incorporating Amendment #489 (March 2010) is included in Appendix E.

Prior to the implementation of residential metered water rates in 2010, the current rates were effective September 1, 2008. The rates in the current rate structure (residential flat rates for both single family and senior citizens, volumetric rates, meter service charges, fluoridation charges, travel meter charges, backflow prevention device charges and other miscellaneous charges) were the result of a series of "across-the-board" percentage increases and were developed as shown in a December 2006 Water Rate Study Final Report prepared by Brown and Caldwell in association with Municipal Financial Services (2006 Water Rate Study).

The series of rate increases (18% on April 1, 2007, 18% on September 1, 2007 and 23% on September 1, 2008) were designed to increase rates so as to collect sufficient revenue to fund operating and capital expenditures, meet debt service obligations and provide adequate fund reserves.

During November 2009, the City approved Master Fee Schedule Resolution No. 80-420 which added residential metered water rates in the Water Fee Section under the Department of Public Utilities. The residential metered water rates included "standby charges" for various meter sizes and a uniform quantity charge for all levels of water use. The rates were effective March 1, 2010 and complement the residential flat rate structure for only single family accounts – that is, no residential metered water rates for senior citizens were adopted.

### 1.3 Utility Advisory Committee Final Report, Session 2010 – 2011

The 2010-2011 session of the Utility Advisory Committee (UAC) was reestablished in October 2009 and was tasked with determining a 5-year plan for fiscal years 2012 – 2016 while taking into account the critical importance of recommending a sound financial plan that protects both the integrity of the utility system and the rate payers. Following 12 months of diligent study of materials provided by City staff and independent consultants, the UAC agreed on a water rate adjustment recommendation based on 9% annual average increase in revenue from charges over five years. The three main options considered by the UAC are summarized in the table below.

**Table 1-2. Revenue from Account, Meter and Quantity Charges - Options Considered by the UAC**

UAC Final Report Options	Percent Increase in Revenue from Rates vs FY 11					Average Annual
	FY 12	FY 13	FY 14	FY 15	FY 16	
Option 1 - Metro Plan w/ \$8M Annual Pipeline Replacement	15%	15%	5%	5%	5%	9%
Option 2 - Current Budget No Metro Plan	2%	2%	2%	2%	2%	2%
Option 3 - Metro Plan w/ \$19M Avg Annual Pipeline Replacement	23%	23%	23%	10%	3%	16%

Option 1 was recommended by the UAC. Note that the options compared the annual increase in revenue from three rates - the account charge (flat residential rates), and the meter and quantity charges. The annual increase in *revenue* was compared because the annual percent increase in the *rates* or the annual percent increase in typical *bills* was too complicated to compare for each option.

Option 1 data presented to the UAC during December 2010 is shown in the table below.

**Table 1-5. Option 1 Data Presented to the UAC**

	Budget	Projected				
	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16
Overall Revenue from Charges, %		15%	15%	5%	5%	5%
Single Family Monthly Bill Increase, %		20%	16%	4%	4%	4%
Monthly Single Family Charge	\$26.93	\$32.28	\$37.38	\$39.03	\$40.73	\$42.53
Monthly Increase, \$		\$5.35	\$5.10	\$1.65	\$1.70	\$1.80
<b>REVENUES, \$ millions</b>						
Charges Revenues	\$63.7	\$73.2	\$84.2	\$88.4	\$92.8	\$97.5
Other Operating Revenues	\$8.7	\$7.0	\$6.8	\$7.1	\$7.4	\$7.7
Total	\$72.4	\$80.3	\$91.0	\$95.5	\$100.2	\$105.2
<b>EXPENSES, \$ millions</b>						
O&M Expenses	\$46.7	\$47.3	\$48.5	\$50.0	\$54.0	\$55.7
Debt Service	\$14.0	\$15.9	\$26.2	\$27.3	\$28.4	\$29.8
Capital Projects (cash funded)	\$45.1	\$13.5	\$7.3	\$9.0	\$9.8	\$10.0
Total	\$105.9	\$76.6	\$81.9	\$86.2	\$92.2	\$95.4
REVENUES less EXPENSES, \$ millions	-\$33.5	\$3.6	\$9.1	\$9.3	\$8.0	\$9.8
Ending Fund Balances, \$ millions	\$3.3	\$6.9	\$16.0	\$25.3	\$33.3	\$43.1
Minimum Fund Reserve Target	\$21.9	\$25.5	\$28.6	\$29.7	\$31.0	\$32.1
Debt Service Coverage	1.71	2.06	1.62	1.66	1.62	1.65
Capital Projects (cash funded), \$ millions	\$45.1	\$13.5	\$7.3	\$9.0	\$9.8	\$10.0
Capital Projects (debt funded), \$ millions	\$0.0	\$25.1	\$138.7	\$16.7	\$18.1	\$18.5
Total, \$ millions	\$45.1	\$38.6	\$146.0	\$25.7	\$27.9	\$28.4

The annual percent increases in the typical monthly water bill for a single family account with an unmetered connection and an 8,000 square foot lot were projected to be approximately 16%, 14%, 4%, 4% and 4% for fiscal years 2012 – 2016 (an average annual increase of approximately 10%).

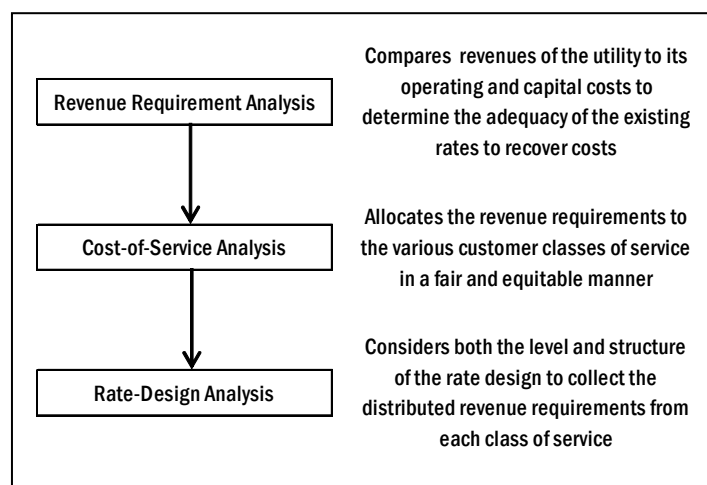
The annual percent increases in the typical monthly water bill for a single family account with a 1-inch metered and 22 HCF of water use were projected to be approximately 20%, 16%, 4%, 4% and 4% for fiscal years 2012 – 2016 (an average annual increase of approximately 12%).

The annual percent increase in the typical monthly water bill for a single family account with a metered connection was greater than that for an unmetered connection in 2012 and 2013 due to the projected large increase in the quantity charge for residential customers from \$0.610/HCF to \$0.847/HCF in 2012 (approximately 39%) and from \$0.847/HCF to \$0.990/HCF in 2013 (approximately 17%).

The entire Utility Advisory Committee Final Report and Recommendation letter, dated March 31, 2011, is included in Appendix F.

## 1.4 Overview of Utility Rate Setting Process

Water rate studies classically have three categories of technical analysis – the development of revenue required from rates, the allocation of costs among functional cost categories (cost-of-service analysis) and the design of a rate structure. An overview of the rate-setting analytical steps as shown in the American Water Works Association M1 manual, *Water Rates Manual*, is displayed in Figure 1-1.



The revenue required from rates is net of non-rate revenues (for example interest earned on fund balances and loan disbursements) and other revenues not required from rates (such as revenue from the provision of backflow prevention program services). The allocation of costs are structured so that the revenue required from rates is distributed proportionally for each water service function in a manner that allows the development of unit costs that are applicable to all customers. The rate structure uses the unit costs as a basis for aggregating costs into rates that are applicable to the various customer classes.

Figure 1-1. Overview of Rate Setting Analytical Steps

The figure below summarizes the cost of service allocation step used in this study. Note that the percent of revenue required from rates to be recovered from quantity charges (66%) is roughly the same as what was recovered from quantity charges (including a portion of the fixed charges for residential unmetered accounts) in FY 10.

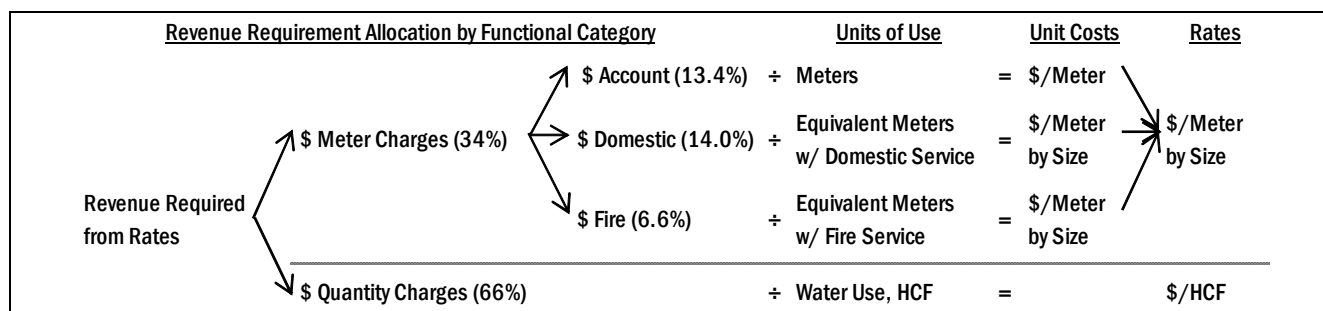


Figure 1-2. Cost of Service Allocation and Rate Design

The proposed rate structure is the same as the current structure with two exceptions – 1) addition of one customer class – irrigation customers – with its own set of meter charges; and 2) creation of a single quantity charge applicable to both residential and nonresidential customers.

Note that flat rates for unmetered charges are not shown in the figure. Documentation describing the cost of service methodology for the current flat rates is not available. The current flat rates have a base rate for lot sizes less than or equal to 6,000 square feet (sq ft) and an additional rate for each additional 100 sq ft of lot size. These rates have been escalated over time. Flat rates for unmetered residential accounts will be phased out as these accounts become converted to metered accounts. The flat rates have been updated so that they recover an amount of revenue from unmetered residential accounts equivalent to the amount of revenue expected had these accounts been metered.

A draft Technical Memorandum (TM) No. 1 which summarized key issues related to the development of cost of service based metered rates was provided to the City during August 2010. Key issues included restrictions on water rate development imposed through contracts, laws and policy; the need to incorporate and optimize competing water rate development objectives; and the determination of customer water use data necessary for the development of rates. The draft TM No. 1 is included in Appendix G.

## 1.5 Senior Citizen Rates

The current Master Fee Schedule includes lower rates for senior citizens with unmetered connections who qualified under the following criteria:

- Single-family residents only;
- Service must be in name of senior citizen;
- Occupants of residence must be senior citizen or dependents of senior citizen (not to exceed three occupants per residence);
- Benefitting senior citizen must notify the City when they no longer qualify.

The current Master Fee Schedule does not include lower rates for senior citizens with metered connections.

The rates for senior citizens with unmetered connections were set at 90 percent of the full rates. As of FY 10, approximately 13,500 residential accounts benefited from the rates for senior citizens.

## 1.6 Effective Dates for Rate Increases

As noted earlier in this section, the percentage increase and effective dates for the previous rate increases were 18% on April 1, 2007, 18% on September 1, 2007 and 23% on September 1, 2008. There has been no increase in rates since the September 1, 2008 increase. The effective dates for rate increases projected in this study will be published in the Notice of Proposed Changes to Water Rates and are listed in the table below.

**Table 1-6. Effective Dates for Recommended Rate Increases, FY 14 – FY 17**

Fiscal Year	FY Begin Date	Rate Increase Effective Dates	FY End Date	Days Between Rate Increases
FY9	Jul 1, 2008	Sep 1, 2008	Jun 30, 2009	
FY10	Jul 1, 2009	no rate increases	Jun 30, 2010	
FY11	Jul 1, 2010	no rate increases	Jun 30, 2011	
FY12	Jul 1, 2011	no rate increases	Jun 30, 2012	
FY13	Jul 1, 2012	no rate increases	Jun 30, 2013	
FY14	Jul 1, 2013	Sep 17, 2013	Jun 30, 2014	1,842
FY15	Jul 1, 2014	Jul 1, 2014	Jun 30, 2015	287
FY16	Jul 1, 2015	Jul 1, 2015	Jun 30, 2016	365
FY17	Jul 1, 2016	Jul 1, 2016	Jun 30, 2017	366



## Section 2

# Customer Characteristics

The amount of revenue from rates is dependent on the number of customers, the type of connection to the water system (metered or unmetered) and level of water use. The number of customers, the number of metered or unmetered connections to the water system, and the level of water use (customer characteristics) that would be subject to rates were projected for the time period FY 12 – FY 21. Those projections are based on actual FY 10 and FY 11 values and estimated growth rates for the projected years.

## 2.1 Residential Customer Characteristics

### 2.1.1 Residential Accounts

The residential category includes only single family dwellings (multiple family residential services are considered commercial). The number of residential accounts for the time period FY 10 – FY 21 are shown in the figure below. Values for FY 12 onward are projected. Detailed data for the projections are shown in Table A-1 in Appendix A. The numbers include both unmetered and metered connections. The number of residential accounts is projected to increase by about 410 per year in FY 12 and FY 13 (approximately 0.4% per year) and then average about 730 per year for the next eight years.

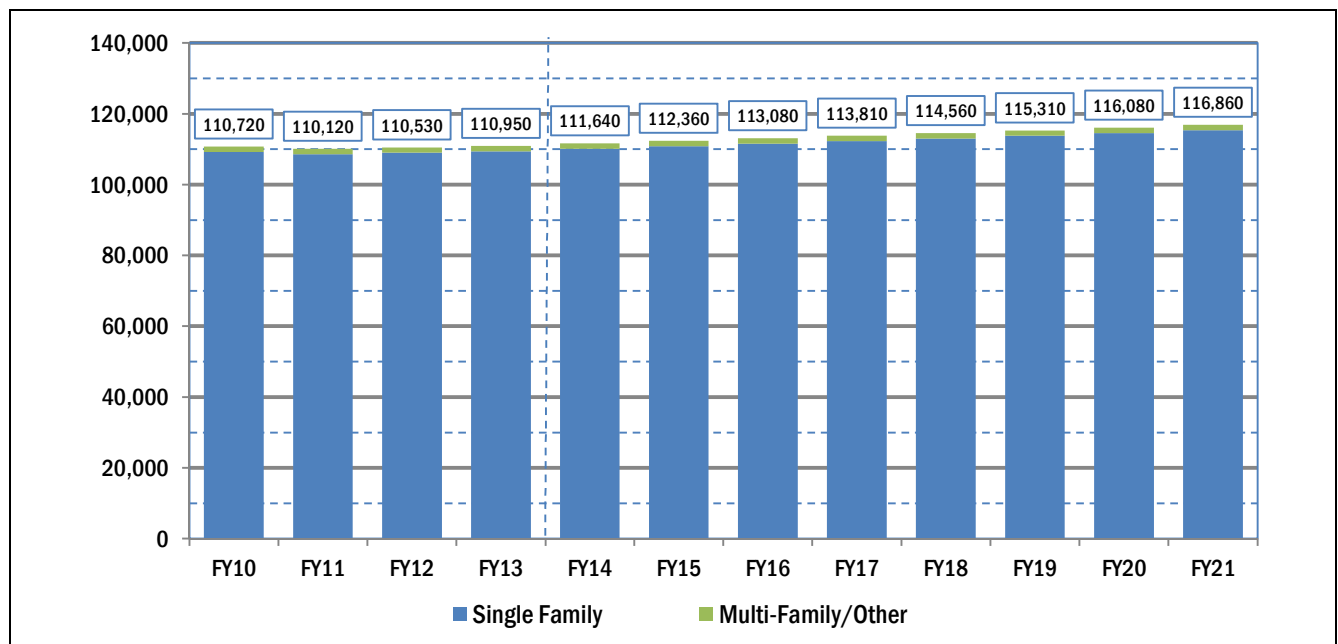


Figure 2-1. Residential Accounts

### 2.1.2 Conversion of Residential Unmetered Accounts

Assembly Bill 514 and Assembly Bill 2572 require urban water suppliers that receive water from the federal Central Valley Project (CVP) to begin charging a metered rate to all users that have meters installed starting in 2010, and complete the installation of all meters by January 2013.

The timing of the conversion of accounts from unmetered to metered is important because water use for metered accounts is projected to be substantially less than for unmetered accounts.

The conversion of residential accounts from unmetered to metered connections began in FY 11 and is expected to be completed in FY 13. For the purpose of rate development, conversion means the time at which an unmetered account is connected to the water system through a meter and is billed using metered rates. The projected number of unmetered and metered connections is shown in the figure below and in Table A-1 in Appendix A.

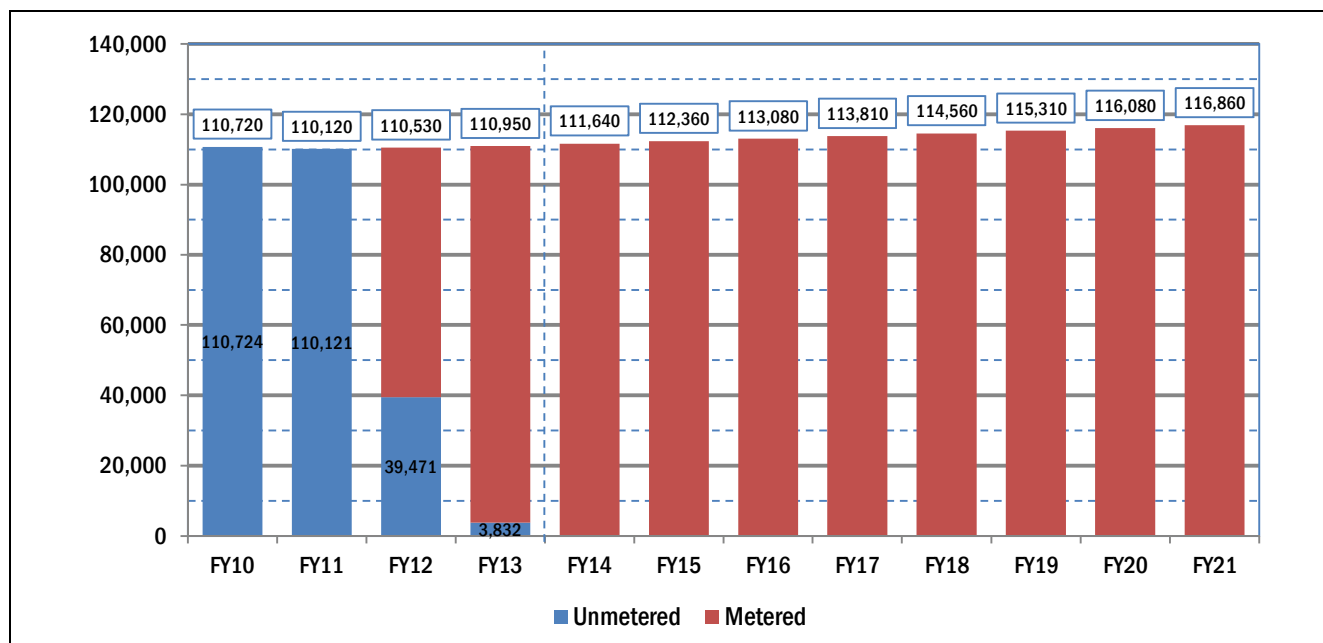


Figure 2-2. Conversion of Residential Accounts from Unmetered to Metered Billing

Approximately 96% of Residential meters will be 1-inch or smaller with the rest being 1½-inch or 2-inch.

### 2.1.3 Residential Units of Additional Square Feet for Unmetered Connections

Unmetered accounts with lot size greater than 6,000 square feet pay an additional flat charge for each additional 100 square foot of lot size. The number of lots which pay the additional flat charge, sorted by lot size and participation in the senior discount program, are shown in Appendix A, Table A-2 for FY 10 and in Appendix A, Table A-3 for FY 11. The number of residential units of additional square feet for unmetered connections is projected to decrease each fiscal year in the same proportion as the number of unmetered connections. The implementation of additional flat charges will be discontinued when all residential accounts are converted to metered accounts.

### 2.1.4 Residential Water Use

The amount of residential water use for the time period FY 10 – FY 21 is shown in the figure below. Values for FY 13 onward are projected. Detailed data for the projections are shown in Table A-4 in Appendix A. The significant drop in residential water use in FY 13 is the result of the addition of accounts that will receive bills based on metered water use.

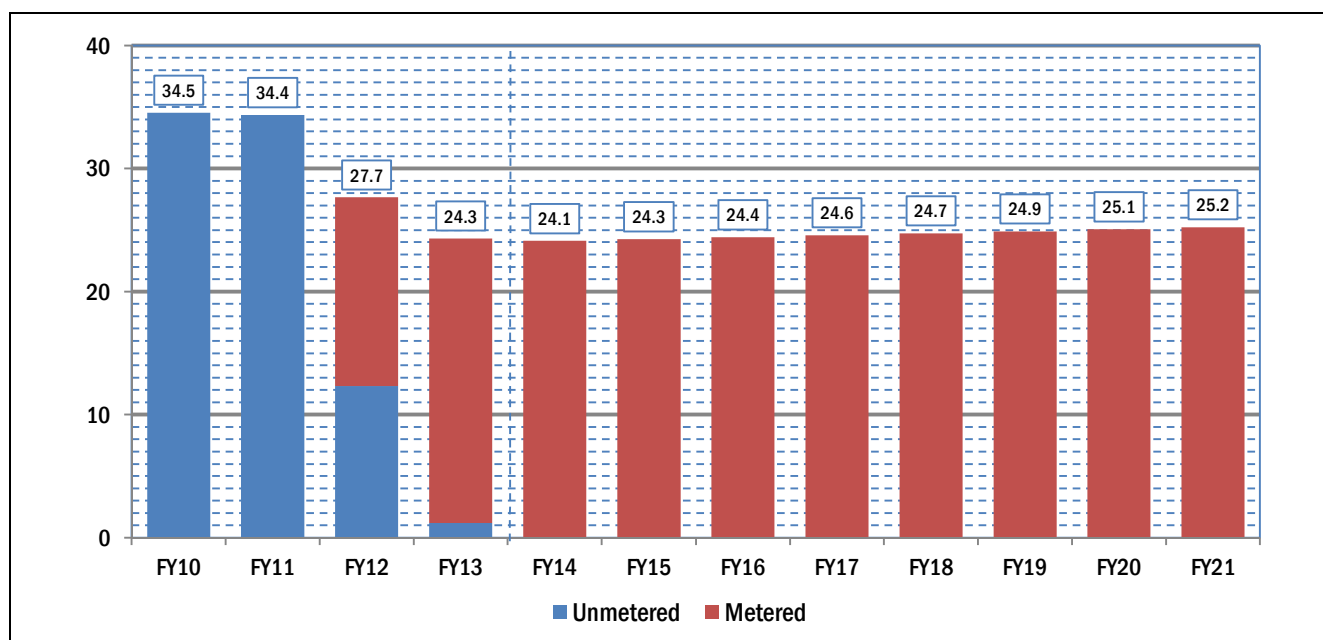


Figure 2-3. Residential Water Use, HCF (x000,000)

It is projected that residential accounts with metered connections will use 18 HCF/month (on an average annual basis) and that residential accounts with unmetered connections will use 26 HCF/month. As a result, when the majority of accounts begin receiving bills based on metered water use, total water use will decrease. The reduction in use is based on the assumption that indoor and outdoor residential use will be reduced by 10 percent and 42 percent, respectively. Total residential water use will be reduced by 31 percent upon the conversion of all residential accounts from unmetered to metered connections.

Estimated conservation, used in mid-2010 for development of rates recommended by the UAC, was 17%. Since that time, nearly all residential accounts have been converted to metered water use bills. The limited amount of water use data available for those customers (many with less than one year of data) suggests a significant reduction in water sales. It is not clear at this time what parts of the reduction are in response to metered billing, the appearance of a quantity charge on the bill, economic factors or seasonal weather factors.

## 2.2 Nonresidential Customer Characteristics

Nonresidential accounts are categorized as either commercial, irrigation, private fire service and travel meters with subcategories for commercial, schools, industrial, municipal and multiple family services (multiple family services are considered commercial).

### 2.2.1 Nonresidential Accounts

The current number of active domestic, irrigation, private fire service and travel meter accounts is approximately 22,200. Approximately 72% are domestic accounts with the remainder irrigation (14%) and private fire service (14%). Travel meters number about 130.

The number of nonresidential accounts for the time period FY 10 – FY 21 are shown in the figure below. Values for FY 12 onward are projected. Detailed data is shown in Table A-5 in Appendix A. The total number of domestic, irrigation, and private fire service is projected to increase by about 60 per year in FY12 and then by about 110 per year for the next nine years.

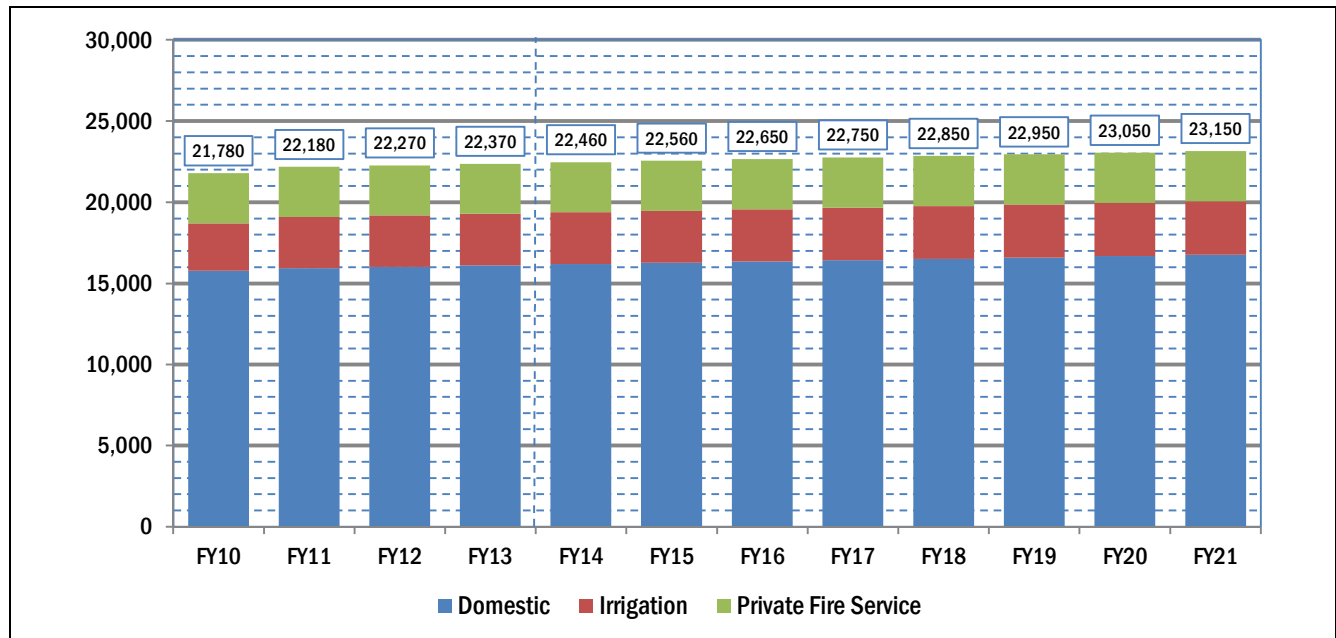


Figure 2-4. Nonresidential Accounts

## 2.2.2 Nonresidential Meters

The number of nonresidential meters for active accounts, by meter size, for FY 13, are shown in the figure below. Detailed data is shown in Table A-5 in Appendix A. Approximately 92% of domestic meter sizes are 2-inch or smaller. Approximately 95% of irrigation meter sizes are 2-inch or smaller.

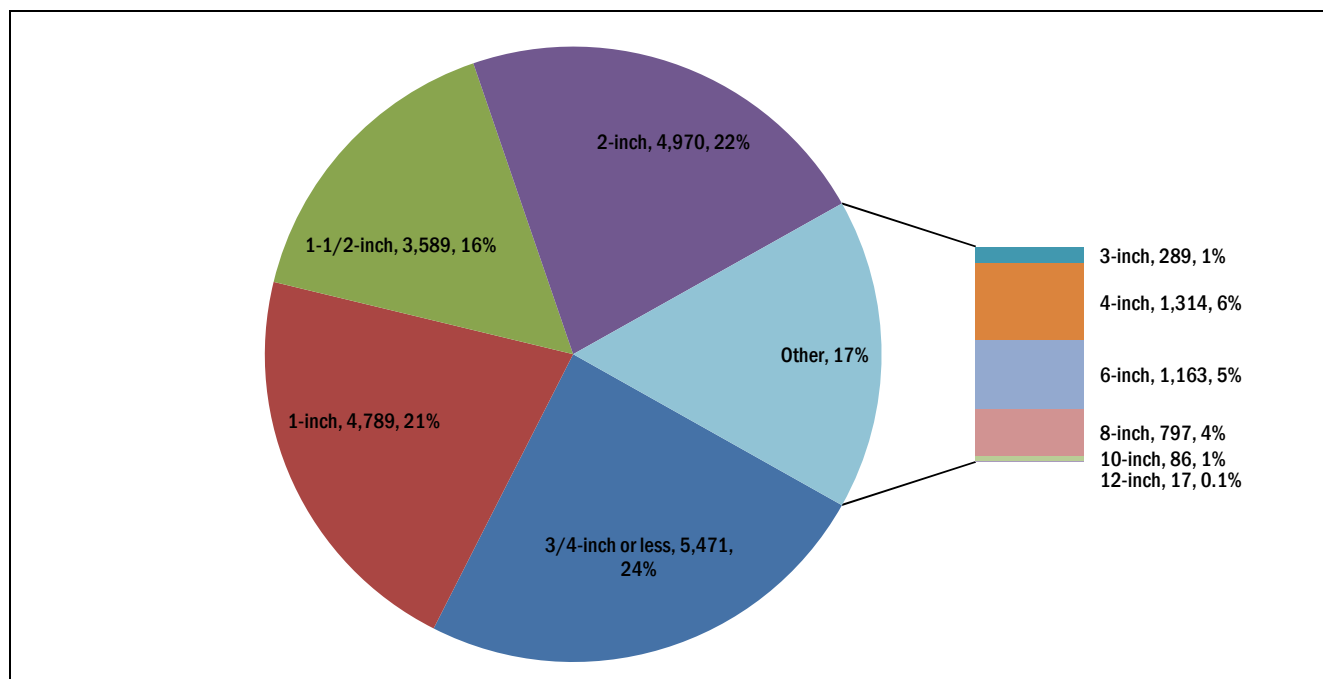


Figure 2-5. Nonresidential Meters by Size, FY 13

### 2.2.3 Nonresidential Water Use

Water use for nonresidential domestic accounts is projected to remain flat with increased use from new connections offset by conservation. Water use for nonresidential irrigation accounts is projected to decrease by approximately 13% in FY 12, remain level for the next four years, and decrease approximately 2% per year for the last five years. Private fire service accounts are not charged for water use (which may entail use for testing fire systems and fire suppression). Water use for travel meter accounts is negligible in comparison to total water use (about 0.5%).

The amount of nonresidential water use for the time period FY 10 – FY 21 is shown in the figure below. Values for FY 12 onward are projected. Detailed data for the projections are shown in Table A-8 in Appendix A.

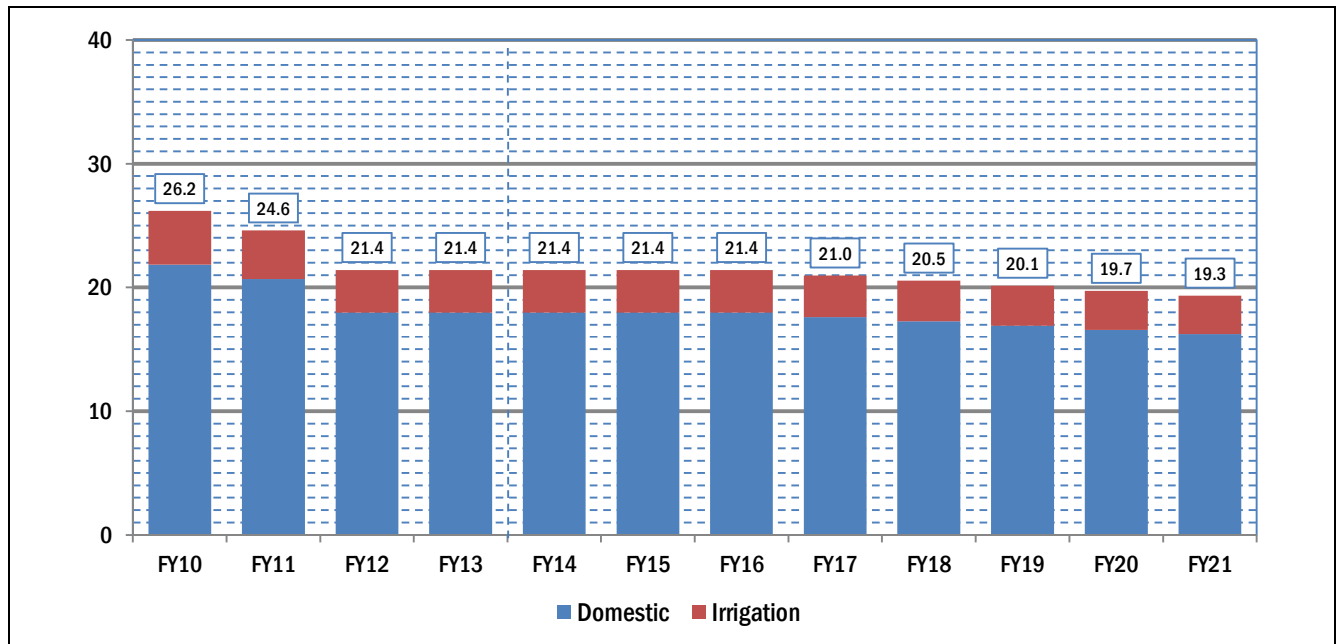


Figure 2-6. Nonresidential Water Use, HCF (x000,000)

## 2.3 Total Water Use

Total water use is projected to decrease through FY 14 at which point nearly all residential accounts will be converted from unmetered to metered connections. Until that time, the projected decrease in water use by residential accounts due to conversion will exceed the projected increase in water use by residential, domestic and irrigation accounts due to growth. Total water water use for residential, domestic and irrigation accounts for the time period FY 10 – FY 21 is shown in the figure below.

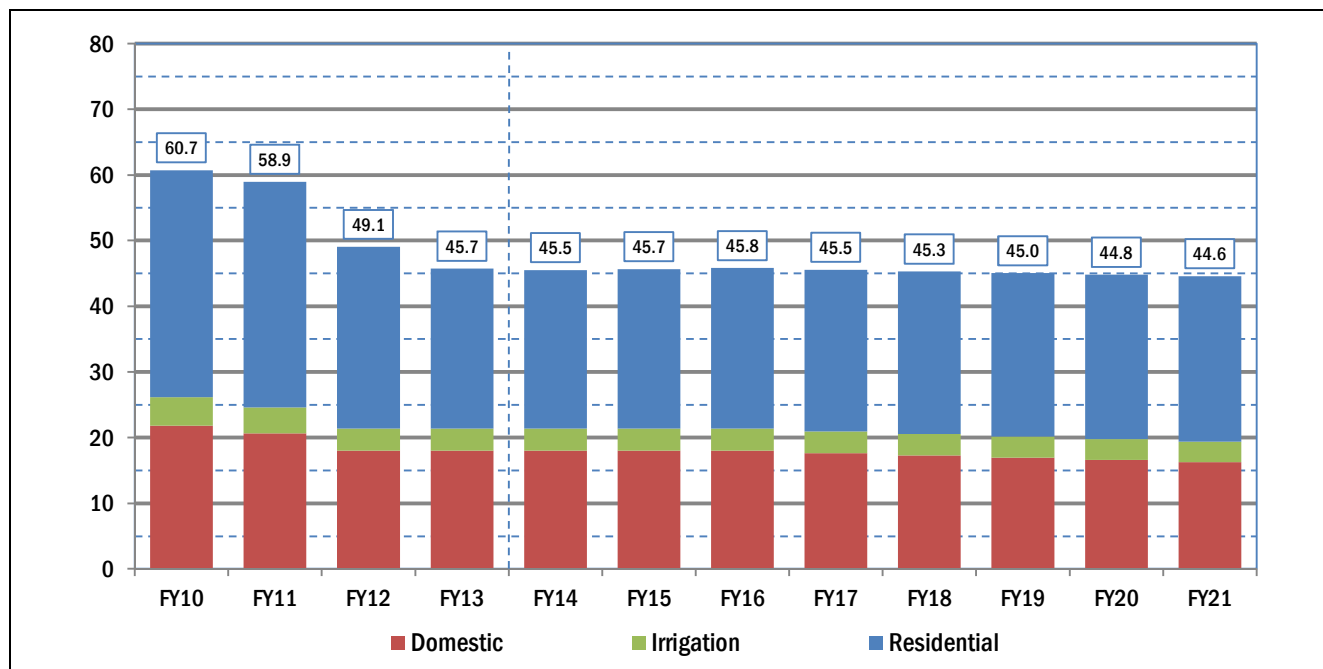


Figure 2-7. Total Water Use, HCF (x000,000)

At this point, it is instructive to emphasize the importance of the projected water use numbers. To the extent that water use projections in the rate model are too high (overly optimistic), the resulting quantity charges for water use would be too low (assuming a fixed amount of revenue is required from quantity charges). Application of the “too low” quantity charges to a water use that is also “too low” (below the projected amounts used to develop quantity charges) would result in a serious decline in the projected amount of revenue from quantity charges.

Water use projections in this study are intended to be slightly lower than what would be expected under usual weather conditions and realistic development scenarios.

To the extent that water use projections in this study exceed actual water use in future years, the amount of revenue from quantity charges will be greater than projected. If expenditures associated with water production and distribution were exactly as projected, the additional revenue from water use would add to the fund balance and enable future rates to be marginally lower than projected.

To the extent that water use projections in this study are less than actual water use in future years, the amount of revenue from quantity charges will be less than projected. If expenditures associated with water production and distribution were exactly as projected, the decreased revenue from water use would decrease the fund balance and require future rates to be marginally higher than projected.

## 2.4 Residential and Nonresidential Equivalent Meters

Some of the costs recovered from charges are based on the number of equivalent meters connected to the water system for active accounts. An “equivalency factor” is a value that expresses the capacity of a water meter in terms of the maximum rated capacity (in gallons per minute) of a standard meter. The standard meter is for a single family connection with a 5/8-inch meter or a 3/4-inch meter. The multiple is based on the capacity for each size water meter versus that for a single family connection. The multiple is the “equivalency factor” between the meter sizes.

The maximum rated capacity and equivalency factors for various meter sizes are listed in Table 2-1. Detailed data with projections of the number of equivalent meters are shown in Table A-6 in Appendix A.

**Table 2-1. Maximum Rated Meter Capacity and Equivalency Factors**

Customer Class	Maximum Rated Meter Capacity	Equivalency Factor
<b>Residential, Domestic and Irrigation</b>		
3/4-inch or smaller	30 gpm	1.00
1-inch	50 gpm	1.67
1-1/2-inch	100 gpm	3.33
2-inch	160 gpm	5.33
3-inch	320 gpm	10.67
4-inch	500 gpm	16.67
6-inch	1,000 gpm	33.33
8-inch	1,600 gpm	53.33
10-inch	2,300 gpm	76.67
12-inch	4,300 gpm	143.33
<b>Private Fire Service</b>		
Private Hydrant	500 gpm	16.67
1-inch	500 gpm	16.67
1-1/2-inch	500 gpm	16.67
2-inch	500 gpm	16.67
2-1/2 and 3-inch	500 gpm	16.67
4-inch	500 gpm	16.67
6-inch	1,000 gpm	33.33
8-inch	1,600 gpm	53.33
10-inch	2,300 gpm	76.67
12-inch	4,300 gpm	143.33
<b>Travel Meters</b>		
3-inch	320 gpm	10.67

The projected number of equivalent meters was adjusted using fire flow demand data provided by the City. The adjustments increase the number of equivalent meters for nonresidential customers to account for the increased fire demands for those customers. No adjustment in the number of equivalent meters is made for irrigation meters because these connections do not add to fire flow demand in the water system. Detailed data with projections of the adjusted number of equivalent meters are shown in Table A-7 in Appendix A.



## 2.5 Backflow Prevention Program

The Backflow Prevention Program applies to approximately 6,990 customers with backflow prevention devices. For a fee, the City tests and certifies backflow devices. The current fee structure has two sets of fees – one for Double-check and/or Pressure Vacuum Breaker Assemblies (approximately 250 accounts) and one for Reduced Pressure Principle Assemblies (approximately 6,740 accounts). Detailed data of accounts by assembly type and size is shown in Appendix A, Table A-9. As with meter service charges for water service, the current fees are greater for larger size assemblies. Backflow Prevention Program Fees for FY 12 were projected to recover approximately \$1,100,000.

During FY 13, the City plans to require customers with backflow devices to certify those devices on an annual basis using private (non-City) testing service providers. The City will no longer test and certify backflow devices. Customers will be required to provide the City with valid certificates on an annual basis. City estimates of the annual cost to implement the revised Backflow Prevention Program and the new monthly fees are included in Appendix I.

## 2.6 Fluoridated Water Program

The Fluoridated Water Program affects approximately 4,950 customers. Detailed data of the number of customers in the program, sorted by customer class, is shown in Appendix A, Table A-10. Fees for FY 13 are projected to recover approximately \$271,000.

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## Section 3

# Financial Plan

Revenue from rates must be sufficient to meet the following financial planning criteria:

1. Provide funds for operating, capital and debt service expenditures;
2. Maintain annual fund balances that meet or exceed the annual target fund balances;
3. Meet debt service coverage requirements;
4. Satisfy City Council rate increase goals; and
5. Meet legal requirements.

### 3.1 Projected Expenditures

The City provided a summary of annual operating and capital expenditures (pay-as-you-go and debt funded) and current and projected debt service payments. The data provided by the City is shown in Table B-1 in Appendix B. Total projected expenditures from FY 14 – FY 21 are projected to be almost \$1 billion (approximately \$976,000,000). Approximately 47% of total expenditures are for operations; the remaining is for pay-as-you-go capital expenditures and debt service.

#### 3.1.1 Operation and Maintenance

O&M expenditures include the cost of operating and maintaining water supply, treatment, storage, recharge and distribution facilities and administering a water conservation program. O&M expenses also include the costs of providing technical services such as water quality testing services and other administrative costs of the water system such as meter reading and billings. These costs are a normal obligation of the system, and are met from operating revenues as they are incurred. They enable the Division to deliver water that meets all current State and Federal quality mandates and to satisfy water supply needs for fire protection and residential, commercial, industrial, municipal, irrigation and school customers.

The comprehensive forecasted annual O&M expenditures for the study are based upon the City's budgeted five-year expenditure plan, which incorporates anticipated changes in operations and the effect of inflation in future years. The City conservatively uses an inflationary factor of three percent in projecting most O&M expenditures, except for employee services which is at two percent. Also, additional staff and equipment for operational imperatives have been included.

#### 3.1.2 Capital Improvement Program

The City has developed a comprehensive Water Capital Improvement Program (CIP) to address current and future water system needs. These projected costs include a three percent annual inflation factor due to anticipated increases in construction costs over time. This inflation rate is a conservative estimate and ensures that the City has adequate resources reserved to complete the necessary projects.

Between FY 13 and FY 17, total projected CIP expenditures are approximately \$410 million. The CIP is to be funded through a combination of system revenues and bond financing. The CIP funding sources include the following:

1. “Pay-as-you-go” revenues – Cash financing of capital improvements is the direct non-debt financing of Water System financed project costs. It is anticipated that cash financing will consist of revenues from the Water Enterprise Fund including customer service revenues, interest earnings, reimbursements, resources from prior year and other miscellaneous revenues.
2. Debt Financing – These consist of revenue bonds that are limited obligations of the City payable from revenues of the Water System after payment of operations and maintenance expenditures. The improvements to the Water System that are anticipated to be debt funded are to be funded through a series of three bond sales in 2013, 2015 and 2017.

Approximately 79% (\$325 million) of the \$410 million is projected to be funded by debt financing. The remaining expenditures are funded from “pay-as-you-go” revenues. Projected CIP expenditures funded by new debt and rates (pay-as-you-go) are shown in the figure below.

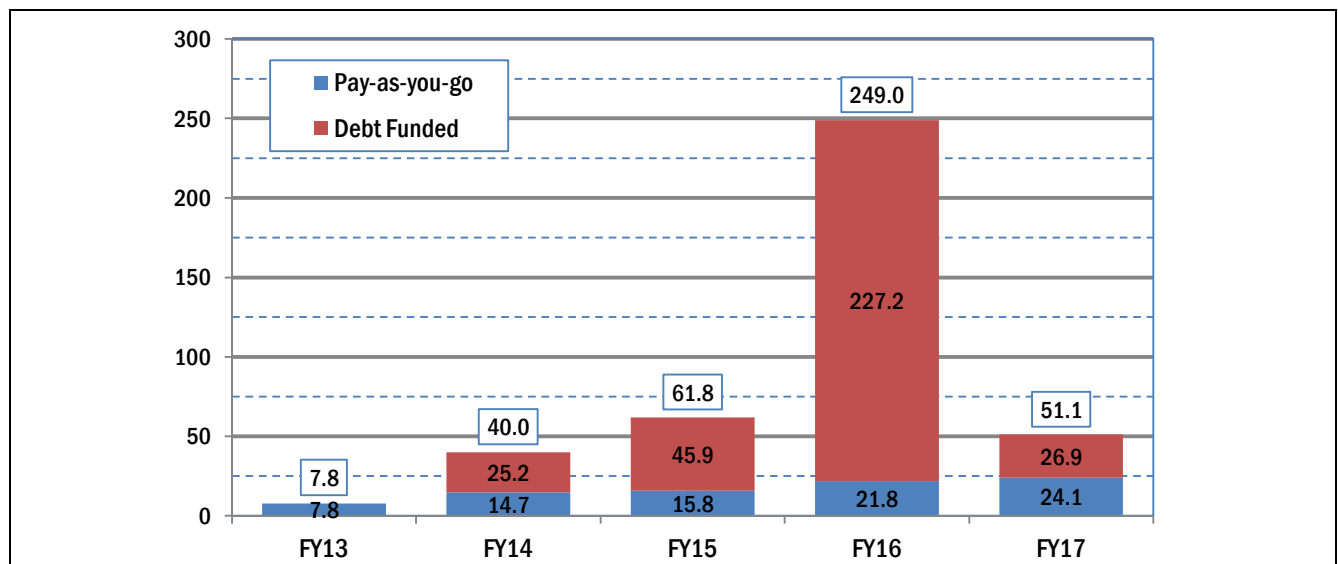


Figure 3-1. Capital Expenditures and New Debt Service, FY 13 – FY 17 (\$'000,000)

The Division will continue to pursue grant and low-interest loan opportunities, but for purposes of this study, no revenues were assumed from these sources.

A list of the 29 projects that comprise the FY 13 – FY 17 \$410 million CIP are shown in Table B-2 in Appendix B.

CIP project expenditures planned for FY 13 through FY 17 are summarized in the following categories along with the total expenditures for each category:

- SE Surface Water Treatment Facility (SWTF)- \$226.6M
- Water Main Renewal- \$55.3M
- SE SWTF Transmission Pipelines- \$49.6M
- Water Well Construction and Rehabilitation- \$32.8M
- T4 Downtown Tank & Booster Pump Station-\$9.7M
- City Recharge Basins-\$7.1M
- Water Main Extensions-\$6.4M
- Downtown Water System Upgrades- \$4.1M
- 19 other water capital projects- \$17.9M

A summary of the capital program is included in Appendix H. A summary of FY 13 – FY 21 annual operating and capital expenditures (pay-as-you-go) and debt service payments are shown in the figure below.

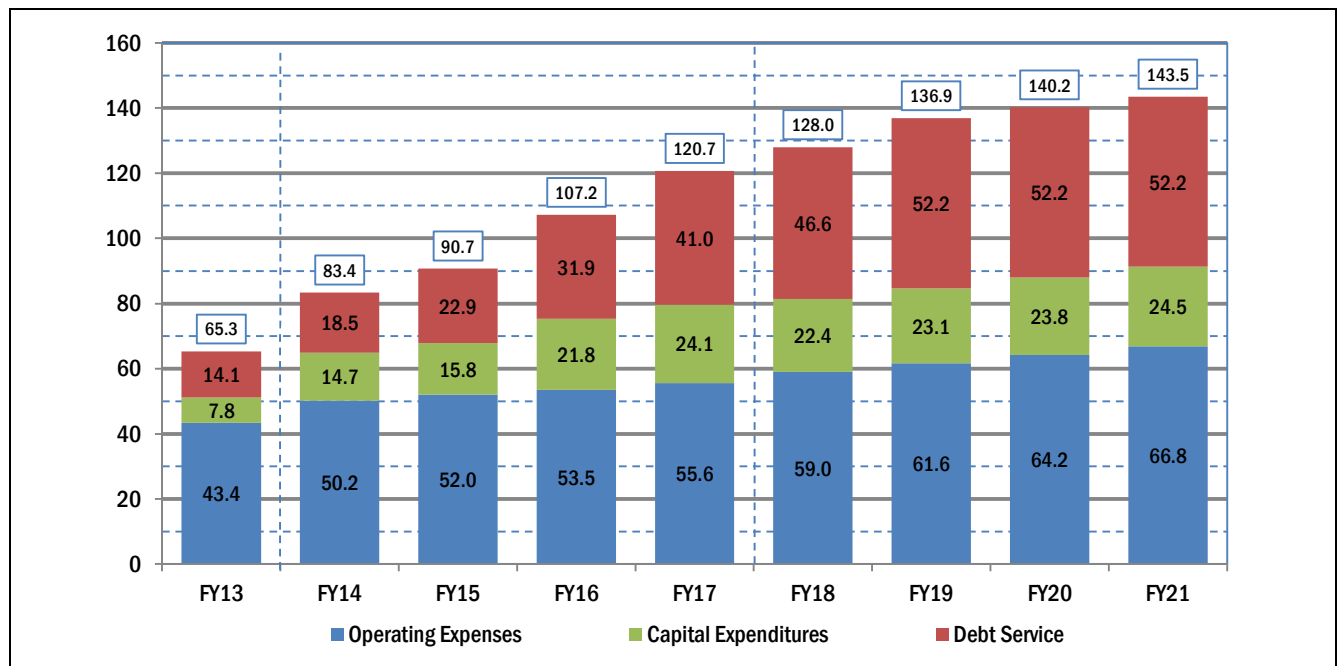


Figure 3-2. Operating and Capital Expenditures and Debt Service, FY 13 – FY 21 (\$000,000)

## 3.2 Projected Revenues from Flat, Meter Service and Quantity Charges

The projected expenditures are funded from the use of the current fund balance, revenues from meter service charges and quantity charges, and other revenues.

Revenues from flat, meter service and quantity charges currently generate approximately 94% of all revenue for the water enterprise. Revenues from charges for FY 11 were approximately \$61.5 million. Revenues from charges for FY 12 decreased substantially to approximately \$57.0 million and rebounded slightly in FY13 to approximately \$58.8 million. Reduction in revenues from the FY11 level is due primarily to a reduction in revenue from water sales.

The projected revenues from flat, meter service and quantity charges are shown in Table B-1 in Appendix B and summarized in the figure below. Note the negligible amount of revenue from flat charges in FY14. Revenues shown are for a full fiscal year of rate increases; actual increases will be for partial years.

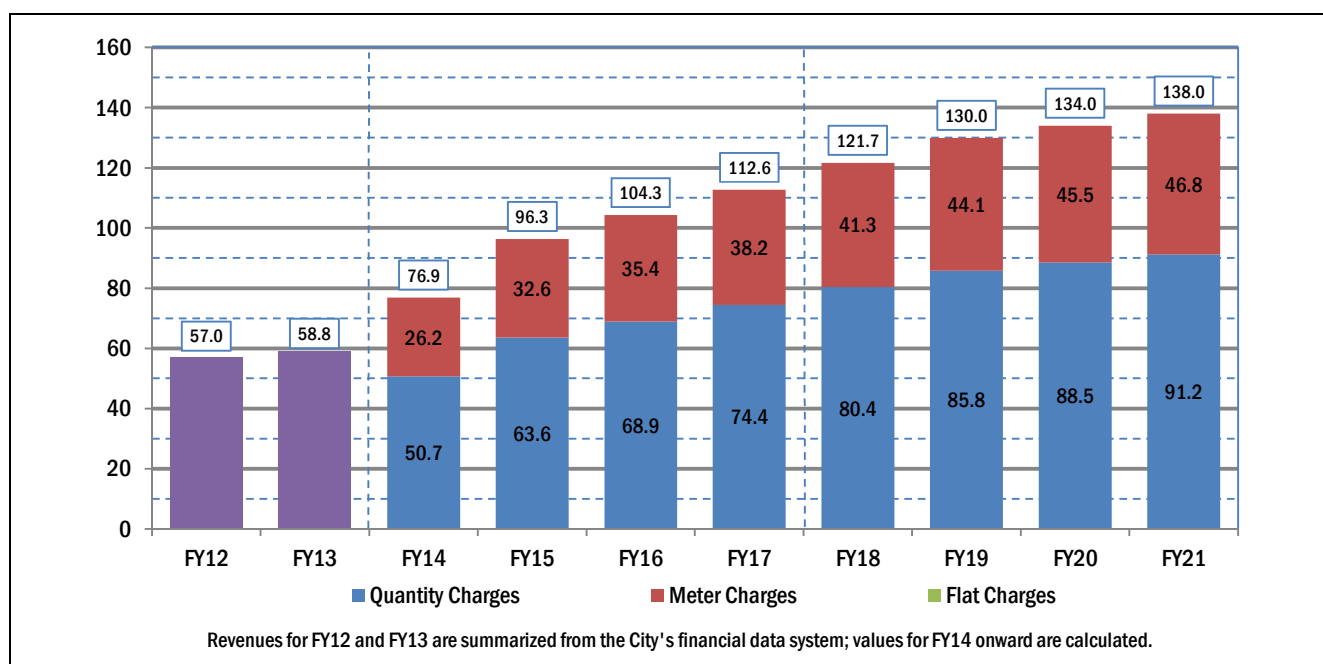


Figure 3-3. Projected Flat, Meter Service and Quantity Charge Revenues, FY 12 – FY 21 (\$000,000)

### 3.3 Projected Fund Balances

Revenues, expenditures and fund balances for FY 14 – FY 17, and the next four years, FY 18 – FY 21, are summarized in the table below. Note that revenue from meter service charges and quantity charges represents approximately 94% of all revenue for the water enterprise.

The amount of fund balance used during the 8-year period is approximately \$15,000,000 or 1.5% of total projected expenditures.

**Table 3-1. FY14 – FY21 Cash Flow**

	1st Four Years FY 14 - FY 17	2nd Four Years FY 18 - FY 21	Totals	% of Total
<b>Beginning Enterprise Fund Balance</b>	\$31,593,058	\$14,299,307		
Operating Expenses	\$211,365,200	\$251,567,807	\$462,933,007	47%
Debt Service	\$114,273,100	\$203,241,258	\$317,514,358	33%
Capital Expenditures	\$102,104,500	\$93,809,025	\$195,913,525	20%
<b>Total Expenditures</b>	<b>\$427,742,800</b>	<b>\$548,618,090</b>	<b>\$976,360,890</b>	<b>100%</b>
Meter & Quantity Charges Revenue	\$385,145,146	\$523,561,685	\$908,706,831	95%
Other Revenues	\$25,303,903	\$27,290,721	\$52,594,624	5%
<b>Total Revenues</b>	<b>\$410,449,049</b>	<b>\$550,852,406</b>	<b>\$961,301,455</b>	<b>100%</b>
Net Revenue	(\$17,293,751)	\$2,234,317	(\$15,059,434)	
<b>Ending Enterprise Fund Balance</b>	<b>\$14,299,307</b>	<b>\$16,533,624</b>		

### 3.4 Target Fund Balances, Debt Service Coverage and Cash Flow

Cash flow must be sufficient to provide funds for operating, capital and debt service expenditures; maintain annual fund balances that meet or exceed the annual target fund balances; and meet debt service coverage requirements. There are many rate increase scenarios that can meet these three criteria. The recommended rate increase scenario is discussed in the following sections.

#### 3.4.1 Enterprise Fund Target Balance

A target fund balance (reserves) was developed for the enterprise fund. A fund balance that is only slightly greater than zero is not a prudent target balance. The fund balance should provide for levels of working capital that will enable the City to adjust to unexpected changes in accounts receivable from ratepayers and pay for unexpected increases in O&M expenses and emergency capital costs.

The working capital component of the target fund balance is based on 45 days of annual O&M expenses. A second component is based five percent of annual O&M expenses for pumping power and source of supply. The third component is a fixed amount for emergency capital expenditures not budgeted as part of the capital improvement program. The fixed amount is increased from \$7.5 million in FY 13 to \$9.5 million in FY 21.

Calculation of the annual enterprise fund target balance is shown in Table B-3 in Appendix B. The enterprise fund target balance in FY 13 is approximately \$13.5 million and increases to approximately \$18.9 million in FY 21.

Reserves for unexpected changes in revenue from water rates (decreases in water use that lead to a decrease in revenue from usage rates) are included in the rate stabilization fund. The rate stabilization fund balance is shown in Table B-3 in Appendix B and remains at approximately \$2,400,000 during the study period.

### 3.4.2 Debt Service Coverage Ratio

The City has multiple debt service obligations and three proposed debt service obligations starting in FY 13. The loan agreement for each debt service obligation contains representations and warranties, covenants and default remedy provisions.

Water enterprise revenue bonds, for example, are secured by a lien upon and from, the revenues of the water enterprise. Commonly, an operating history of the enterprise or feasibility studies are used to determine that such revenues are sufficient to pay projected operation and maintenance expenses of the enterprise, debt service associated with the bonds and an additional amount known as coverage. Issuers of public enterprise revenue bonds generally covenant in the bond resolution or indenture to establish rates and charges for the products or services provided by the enterprise in a manner sufficient to provide revenues to pay such amounts and to provide coverage.

Section 5.12 of the City's 2003 Series A Water System Revenue Refunding Bonds Indenture states, "The City will fix, prescribe and collect rates, fees and charges for the Water System Service which are reasonable and fair and which will be at least sufficient to yield during each Fiscal Year (a) Net Current Revenues equal to at least one hundred percent (100%) of the estimated Debt Service for such Fiscal Year and (b) Net Revenues equal to at least one hundred and twenty-five percent (125%) of the estimated Debt Service for such Fiscal Year. The City may make adjustments from time to time in such rates, fees and charges and may make such classification thereof as it deems necessary, but shall not reduce the rates, fees and charges then in effect unless the Net Current Revenues and the Net Revenues from such reduced rates, fees and charges will at all times be sufficient to meet the requirements of this section."

The debt service coverage ratio used for evaluation of rates in this study is 1.25. Calculation of the annual debt service coverage ratio is shown in Table B-4 in Appendix B.



### 3.4.3 Cash Flow

Cash flow was generally summarized in Table 3-1 for two, four-year periods. Annual expenditures, revenues and cash flow, represented by the ending balance for the enterprise fund, are shown in the figure below. Also shown at the bottom line of the figure are the annual values of the debt service coverage ratio.

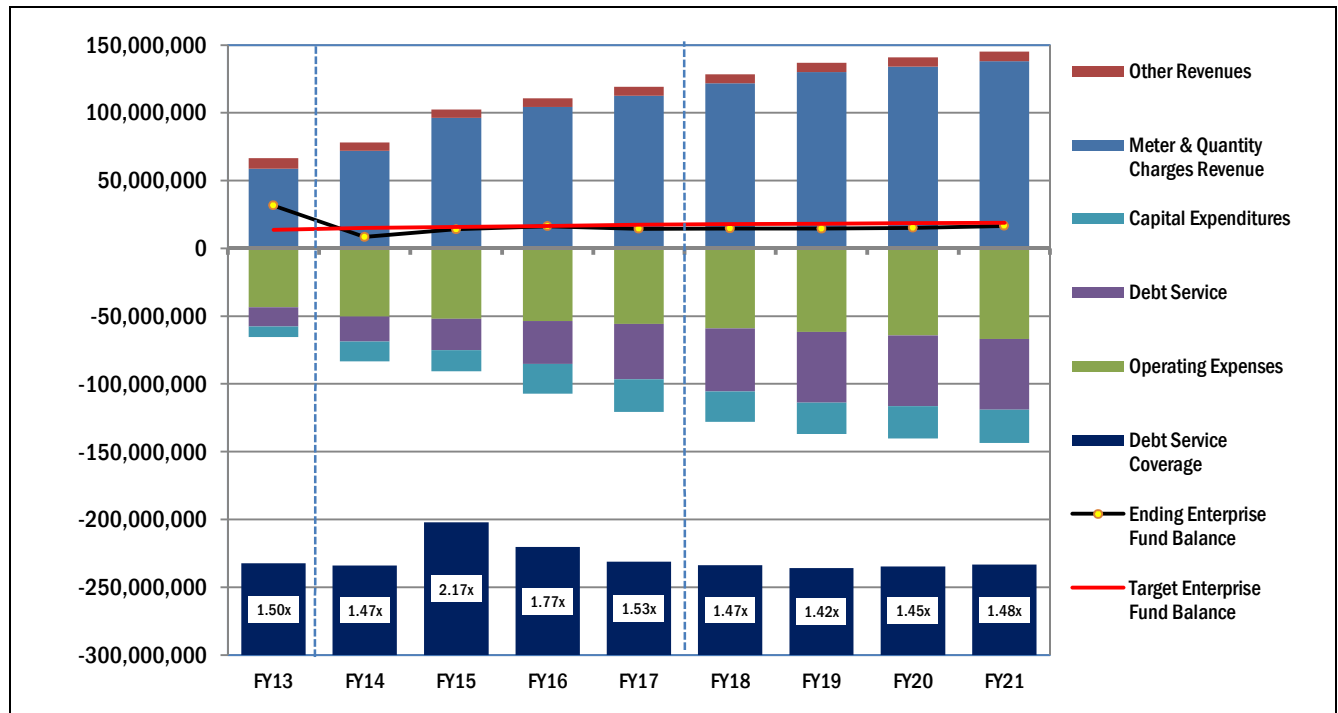


Figure 3-4. Cash Flow, Fund Balance and Debt Service Coverage, FY 13 – FY 21

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## Section 4

# Allocation of Costs and Projected Charges and Fees

## 4.1 Allocation of Costs

The total amount of revenue required from charges is allocated between amounts to be recovered from meter service charges and from the quantity charge. This is accomplished by first allocating costs to two functional cost categories – those that are independent of the amount of water use (for example, billing, collection, meter reading, fire protection) and those that are dependent on the amount of water use (source of supply, treatment, storage, distribution, etc.). Charges for the Backflow Prevention Program and the Fluoridated Water Program are separate and based on the cost to provide those services.

The figure below summarizes the cost of service rate development methodology used in this study. The actual dollar amounts associated these percentages are shown for each fiscal year for FY 14 – FY 21 in Table C-1 in Appendix C.

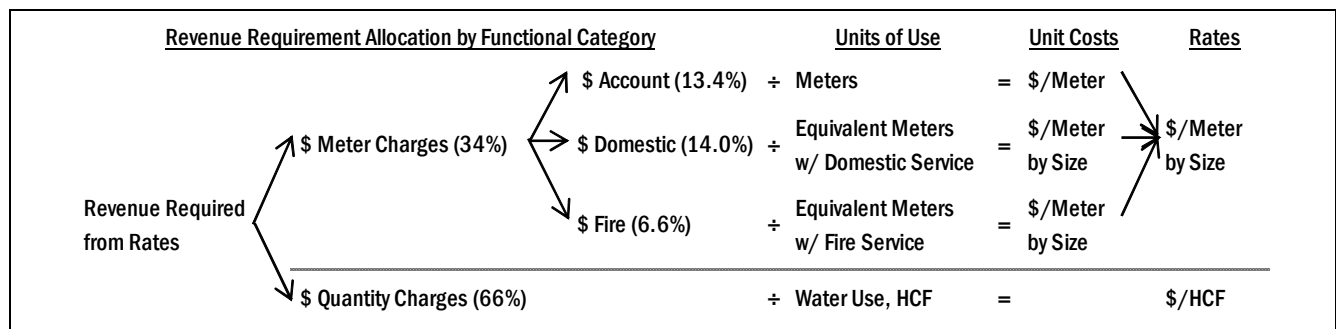


Figure 4-1. Cost of Service Analysis and Rate Design

Note that the percent of revenue required from rates to be recovered from quantity charges (66%) is roughly the same as what was recovered from quantity charges (including a portion of the fixed charges for residential unmetered accounts) in FY 10.

The percent of revenue to be recovered from accounts, irrespective of meter size or the amount or rate of water use, is 13.4%. This allocation is associated with costs that include, but are not limited to, meter reading, billing, customer accounting, customer service and collecting expenses.

The percent of revenue to be recovered based on meter size, irrespective of the amount or rate of water use, is 20.6%. This allocation is divided into two components. The domestic component (14%) is associated with costs that include, but are not limited to the maintenance and capital costs related to meters and services that provide water for domestic use (potable water and irrigation water). The fire component (6.6%) is associated with costs that include, but are not limited to public fire hydrants and related branch mains and valves.

## 4.2 Projected Charges and Fees

Charges and fees developed in this study include the following:

- Quantity charges for all accounts
- Meter charges for domestic accounts
- Meter charges for irrigation accounts
- Meter charges for private fire service accounts
- Flat charges for unmetered residential accounts (until phase out)
- Fluoridated Water Program charges

### 4.2.1 Quantity Charges

The development of recommended quantity charges based on cost of service principles involves allocating revenue requirements related to the source of supply and production of water and dividing that dollar amount by the projected amount of water use.

As shown in Figure 4-1, the amount of revenue to be recovered from recommended quantity charges is 66 percent of the total revenue required from both meter service charges and quantity charges (note that revenue from fees for the Backflow Prevention Program and the Fluoridated Water Program and other miscellaneous services are not included in the total). Note that these percentages are completely dependent on assumptions of projected water use for each customer class - particularly for unmetered and metered residential users.

Current and recommended quantity charges are shown in the table below. Detailed tabulation of quantity charges is shown in Table C-2 in Appendix C.

**Table 4-1. Current and Recommended Quantity Charges, \$/HCF**

Item	Current	Recommended			
		FY14	FY15	FY16	FY17
Residential/Domestic, \$/HCF	\$0.610	\$1.11	\$1.39	\$1.50	\$1.63
Nonresidential, \$/HCF	\$0.745	\$1.11	\$1.39	\$1.50	\$1.63

The current residential metered rate of \$0.610 per HCF, approved during November 2009, was developed by HDR Engineering, Inc. The current metered rate for nonresidential customers is \$0.745. It is recommended that the two different quantity charges be replaced with a single quantity charge applicable to all customers.

### 4.2.2 Meter Service Charges

The development of recommended meter service charges based on cost of service principles involves allocating revenue requirements that are independent of water use among three categories of costs and dividing those dollar amounts by the projected number of meters or equivalent meters.

As shown in Figure 4-1, the amount of revenue from recommended meter charges is 34 percent of the total revenue required from both meter charges and quantity charges. Also shown in Figure 4-1 is the percent of revenue requirements allocated among the three cost components - 13.4% to accounts, 14.0% to domestic use and 6.6% to fire service.

The percentage of revenue to be recovered from meter service charges in FY13 and beyond is set at 34 percent, and allocated to cost components as described above, for the following reasons:

- The City seeks to limit the percentage increase in charges during the transition to cost of service charges;
- The City seeks to limit the variation in customer bills during the transition to metered service for residential customers;
- Standard industry cost of service allocation methodology would support a range of percentages of revenue from meter service charges typically ranging from 15 – 40 percent; and
- The City plans to evaluate the amount of water use subsequent to completion of residential meter installation and conduct another comprehensive cost of service review.

Current and recommended meter charges are shown in the table below. Detailed tabulation of meter charges is shown in Table C-3 and Table C-4 in Appendix C.

**Table 4-2. Current and Recommended Meter Service Charges, \$/month**

Item	Current	Recommended			
		FY14	FY15	FY16	FY17
Residential, \$/month					
3/4-inch or smaller	\$10.03	\$10.50	\$13.00	\$14.00	\$15.00
1-inch	\$13.51	\$13.30	\$16.40	\$17.70	\$19.00
1-1/2-inch	\$18.89	\$20.10	\$24.90	\$26.80	\$28.80
2-inch	\$27.09	\$28.20	\$35.10	\$37.70	\$40.50
3-inch	\$45.07	\$50.10	\$62.20	\$66.90	\$71.90
4-inch	\$63.03	\$74.60	\$92.80	\$99.70	\$107.00
6-inch	\$99.01	\$143.00	\$178.00	\$191.00	\$205.00
8-inch	\$152.96	\$225.00	\$279.00	\$300.00	\$323.00
10-inch	\$179.83	\$320.00	\$398.00	\$428.00	\$460.00
12-inch		\$593.00	\$737.00	\$792.00	\$852.00
Domestic, \$/month					
3/4-inch or smaller	\$10.03	\$11.00	\$13.70	\$14.70	\$15.80
1-inch	\$13.51	\$14.10	\$17.50	\$18.80	\$20.30
1-1/2-inch	\$18.89	\$21.80	\$27.10	\$29.20	\$31.30
2-inch	\$27.09	\$31.10	\$38.60	\$41.50	\$44.60
3-inch	\$45.07	\$55.80	\$69.30	\$74.50	\$80.10
4-inch	\$63.03	\$83.50	\$104.00	\$112.00	\$120.00
6-inch	\$99.01	\$161.00	\$200.00	\$215.00	\$231.00
8-inch	\$152.96	\$253.00	\$315.00	\$338.00	\$364.00
10-inch	\$179.83	\$361.00	\$449.00	\$483.00	\$519.00
12-inch		\$670.00	\$833.00	\$895.00	\$962.00
Irrigation, \$/month					
3/4-inch or smaller	\$10.03	\$9.70	\$12.00	\$12.90	\$13.90
1-inch	\$13.51	\$11.90	\$14.80	\$15.90	\$17.00
1-1/2-inch	\$18.89	\$17.40	\$21.60	\$23.20	\$24.90
2-inch	\$27.09	\$24.00	\$29.80	\$32.00	\$34.30
3-inch	\$45.07	\$41.50	\$51.60	\$55.40	\$59.50
4-inch	\$63.03	\$61.30	\$76.10	\$81.70	\$87.80
6-inch	\$99.01	\$116.00	\$144.00	\$155.00	\$167.00
8-inch	\$152.96	\$182.00	\$226.00	\$243.00	\$261.00
10-inch	\$179.83	\$259.00	\$322.00	\$345.00	\$371.00
12-inch		\$478.00	\$594.00	\$638.00	\$686.00
Private Fire Service, \$/month					
Private Hydrant	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20
1-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20
1-1/2-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20
2-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20
2-1/2 and 3-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20
4-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20
6-inch	\$35.94	\$68.70	\$85.60	\$92.10	\$99.20
8-inch	\$47.92	\$106.00	\$132.00	\$142.00	\$153.00
10-inch	\$59.90	\$150.00	\$187.00	\$201.00	\$216.00
12-inch	\$71.88	\$274.00	\$342.00	\$368.00	\$396.00

There are some important assumptions made in the calculation of meter service charges that change the meter service charge structure for each customer class. Those assumptions are listed below:

- Residential and Domestic meter service charges include the account, domestic use and fire service components;
- Charges for nonresidential meters were adjusted using fire demand data provided by the City. The adjustments increase the number of equivalent meters for nonresidential customers to account for the increased fire demands for those customers.
- Irrigation meter service charges include the account and domestic use components and exclude the fire service component (a new assumption not reflected in the current charges);
- Fire service meter service charges include the account and fire service components and exclude the domestic component;
- Fire meter service charges for private hydrants and for meter sizes 4-inch and smaller are assigned the same rated capacity; and
- Travel meter charges are assigned the same 3-inch meter rated capacity.

### 4.2.3 Residential Flat Charges

Until the conversion of residential accounts from unmetered to metered connections is complete the City will require residential flat charges in its Master Fee Schedule. Residential flat charges are developed by calculating total revenue requirements for residential as if the entire customer class was unmetered and then recovering those revenues using the two flat charges – one for the first 6000 square feet of lot size and the other for each additional 100 square feet of lot size.

Current and recommended flat charges are shown in the table below. City staff expect the conversion of residential accounts from unmetered to metered connections to be nearly completed by the end of FY 13 (June 30, 2013). Residential flat charges for unmetered connections are shown in the table below for FY 14 – FY 17 but are not shown in the Proposition 218 notice beginning in FY 15. Detailed tabulation of flat charges is shown in Table C-5 in Appendix C.

**Table 4-3. Current and Recommended Residential Flat Charges**

Item	Current	Recommended			
		FY14	FY15	FY16	FY17
Residential Flat Charges					
Single Family, \$/month					
First 6000 sq ft lot size	\$22.87	\$28.32	\$35.15	\$37.85	\$40.90
Each additional 100 sq ft lot size	\$0.228	\$0.286	\$0.355	\$0.382	\$0.412
Senior Citizen, \$/month					
First 6000 sq ft lot size	\$20.56	\$25.49	\$31.64	\$34.07	\$36.81
Each additional 100 sq ft lot size	\$0.204	\$0.257	\$0.320	\$0.344	\$0.371

## 4.3 Special Program Fees

The City has fees that pay for the implementation of two special programs that are part of the water enterprise. These two programs are the Backflow Prevention Program and the Fluoridated Water Program. The development of cost of service based fees for these two programs are described in the following subsections.

### 4.3.1 Backflow Prevention Program Fees

The Backflow Prevention Program applies to approximately 6,990 customers with backflow devices. For a fee, the City tests and certifies backflow devices. The current fee structure has two sets of fees – one for Double-check and/or Pressure Vacuum Breaker Assemblies (approximately 250 accounts) and one for Reduced Pressure Principle Assemblies (approximately 6,740 accounts). Detailed data of accounts by assembly type and size is shown in Appendix A, Table A-9. As with meter service charges for water service, the current fees are greater for larger size assemblies. Backflow Prevention Program Fees for FY 12 were projected to recover approximately \$1,100,000.

During FY 13, the City plans to require customers with backflow devices to certify those devices on an annual basis using private (non-City) testing service providers. The City will no longer test and certify backflow devices. Customers will be required to provide the City with valid certificates on an annual basis. City estimates of the annual cost to implement the revised Backflow Prevention Program and the new monthly fees are included in Appendix I.

### 4.3.2 Fluoridated Water Program Fees

The Fluoridated Water Program affects approximately 4,950 customers. The current charges, as with other water enterprise charges, is based on “across-the-board” percentage increases to prior years’ fees. The extent to which the current fees are supported by proportional cost of service principles is not known.

Recommended fees were developed by projecting the annual expenditures associated with the program and allocating those expenditures among the projected annual number of customers participating in the program. Fees for FY 14 are projected to recover approximately \$279,000. Detailed tabulation of Fluoridated Water Program charges is shown in Table C-6 in Appendix C.

## 4.4 Summary of Projected Charges and Fees

A summary of residential flat, meter and quantity charges, and Fluoridated Water Program fees, are shown in Table C-7 in Appendix C. The charges shown in this table are those that would appear in a Proposition 218 notice and in the City’s Master Fee Schedule. City staff expect the conversion of residential accounts from unmetered to metered connections to be nearly completed by the end of FY 13 (June 30, 2013). Residential flat charges for unmetered connections are not shown in the Proposition 218 notice beginning in FY 15.



Recommended rates for each group of charges, by customer class, are shown in the table below. The range of percent changes in FY 14 is mostly due to the comparison of charges based on cost of service methodology for FY 14 with those that were based on across the board rate increases for the current charges and fees.

**Table 4-4. Current and Recommended Charges and Fees, FY 13 – FY 17**

Item	Current	Recommended				Recommended			
		FY 14	FY 15	FY 16	FY 17	FY 14	FY 15	FY 16	FY 17
<b>Residential Flat Charges</b>									
Single Family, \$/month									
First 6000 sq ft lot size	\$22.87	\$28.32	new services discontinued				24%	new services discontinued	
Each additional 100 sq ft lot size	\$0.228	\$0.286					25%		
Senior Citizen, \$/month									
First 6000 sq ft lot size	\$20.56	\$25.49	new services discontinued				24%	new services discontinued	
Each additional 100 sq ft lot size	\$0.204	\$0.257					26%		
<b>Meter Charges, \$/month</b>									
<b>Residential</b>									
3/4-inch or smaller	\$10.03	\$10.50	\$13.00	\$14.00	\$15.00	5%	24%	8%	7%
1-inch	\$13.51	\$13.30	\$16.40	\$17.70	\$19.00	-2%	23%	8%	7%
1-1/2-inch	\$18.89	\$20.10	\$24.90	\$26.80	\$28.80	6%	24%	8%	7%
2-inch	\$27.09	\$28.20	\$35.10	\$37.70	\$40.50	4%	24%	7%	7%
3-inch	\$45.07	\$50.10	\$62.20	\$66.90	\$71.90	11%	24%	8%	7%
4-inch	\$63.03	\$74.60	\$92.80	\$99.70	\$107.00	18%	24%	7%	7%
6-inch	\$99.01	\$143.00	\$178.00	\$191.00	\$205.00	44%	24%	7%	7%
8-inch	\$152.96	\$225.00	\$279.00	\$300.00	\$323.00	47%	24%	8%	8%
10-inch	\$179.83	\$320.00	\$398.00	\$428.00	\$460.00	78%	24%	8%	7%
12-inch		\$593.00	\$737.00	\$792.00	\$852.00		24%	7%	8%
<b>Nonresidential</b>									
3/4-inch or smaller	\$10.03	\$11.00	\$13.70	\$14.70	\$15.80	10%	25%	7%	7%
1-inch	\$13.51	\$14.10	\$17.50	\$18.80	\$20.30	4%	24%	7%	8%
1-1/2-inch	\$18.89	\$21.80	\$27.10	\$29.20	\$31.30	15%	24%	8%	7%
2-inch	\$27.09	\$31.10	\$38.60	\$41.50	\$44.60	15%	24%	8%	7%
3-inch	\$45.07	\$55.80	\$69.30	\$74.50	\$80.10	24%	24%	8%	8%
4-inch	\$63.03	\$83.50	\$104.00	\$112.00	\$120.00	32%	25%	8%	7%
6-inch	\$99.01	\$161.00	\$200.00	\$215.00	\$231.00	63%	24%	8%	7%
8-inch	\$152.96	\$253.00	\$315.00	\$338.00	\$364.00	65%	25%	7%	8%
10-inch	\$179.83	\$361.00	\$449.00	\$483.00	\$519.00	101%	24%	8%	7%
12-inch		\$670.00	\$833.00	\$895.00	\$962.00		24%	7%	7%
<b>Irrigation</b>									
3/4-inch or smaller	\$10.03	\$9.70	\$12.00	\$12.90	\$13.90	-3%	24%	8%	8%
1-inch	\$13.51	\$11.90	\$14.80	\$15.90	\$17.00	-12%	24%	7%	7%
1-1/2-inch	\$18.89	\$17.40	\$21.60	\$23.20	\$24.90	-8%	24%	7%	7%
2-inch	\$27.09	\$24.00	\$29.80	\$32.00	\$34.30	-11%	24%	7%	7%
3-inch	\$45.07	\$41.50	\$51.60	\$55.40	\$59.50	-8%	24%	7%	7%
4-inch	\$63.03	\$61.30	\$76.10	\$81.70	\$87.80	-3%	24%	7%	7%
6-inch	\$99.01	\$116.00	\$144.00	\$155.00	\$167.00	17%	24%	8%	8%
8-inch	\$152.96	\$182.00	\$226.00	\$243.00	\$261.00	19%	24%	8%	7%
10-inch	\$179.83	\$259.00	\$322.00	\$345.00	\$371.00	44%	24%	7%	8%
12-inch		\$478.00	\$594.00	\$638.00	\$686.00		24%	7%	8%
<b>Private Fire Service</b>									
Private Hydrant	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	57%	24%	7%	8%
1-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	57%	24%	7%	8%
1-1/2-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	57%	24%	7%	8%
2-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	57%	24%	7%	8%
2-1/2 and 3-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	57%	24%	7%	8%
4-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	57%	24%	7%	8%
6-inch	\$35.94	\$68.70	\$85.60	\$92.10	\$99.20	91%	25%	8%	8%
8-inch	\$47.92	\$106.00	\$132.00	\$142.00	\$153.00	121%	25%	8%	8%
10-inch	\$59.90	\$150.00	\$187.00	\$201.00	\$216.00	150%	25%	7%	7%
12-inch	\$71.88	\$274.00	\$342.00	\$368.00	\$396.00		25%	8%	8%
<b>Quantity Charges, \$/HCF</b>									
All Classes	\$0.745	\$1.11	\$1.39	\$1.50	\$1.63	49%	25%	8%	9%
Residential, Current	\$0.610					82%			
<b>Fluoridated Water Program Fees, \$/month</b>	\$4.52	\$4.54	\$4.62	\$4.71	\$4.79	0%	2%	2%	2%

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## Section 5

# Impact on Customer Bills

### 5.1 Revenue from Projected Charges

The total amount of revenue projected from charges, by customer class and type of charge, is summarized in Table 5-1. Detailed data for FY 14 – FY 21 is included in Appendix D, Table D-5.

**Table 5-1. Revenue from Projected Charges**

Item	Projected			
	FY14	FY15	FY16	FY17
<b>Residential</b>				
Quantity Charges	\$26,767,765	\$33,733,465	\$36,636,948	\$40,070,577
Meter Charges	\$17,907,816	\$22,234,216	\$24,143,667	\$26,083,963
Flat Charges	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Total	\$44,675,581	\$55,967,681	\$60,780,615	\$66,154,540
<b>Nonresidential</b>				
Quantity Charges	\$20,098,878	\$25,168,865	\$27,160,646	\$28,928,352
Meter Charges	<u>\$5,142,404</u>	<u>\$6,424,166</u>	<u>\$6,940,795</u>	<u>\$7,496,366</u>
Total	\$25,241,282	\$31,593,031	\$34,101,441	\$36,424,718
<b>Irrigation</b>				
Quantity Charges	\$3,786,467	\$4,741,612	\$5,116,847	\$5,449,101
Meter Charges	<u>\$794,918</u>	<u>\$992,068</u>	<u>\$1,070,752</u>	<u>\$1,153,677</u>
Total	\$4,581,385	\$5,733,680	\$6,187,599	\$6,602,779
<b>Private Fire Service</b>				
Quantity Charges	\$0	\$0	\$0	\$0
Meter Charges	<u>\$2,392,148</u>	<u>\$2,979,415</u>	<u>\$3,204,391</u>	<u>\$3,451,682</u>
Total	\$2,392,148	\$2,979,415	\$3,204,391	\$3,451,682
<b>Total</b>				
Quantity Charges	\$50,653,110	\$63,643,942	\$68,914,441	\$74,448,030
Meter Charges	\$26,237,286	\$32,629,866	\$35,359,606	\$38,185,689
Flat Charges	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Total	\$76,890,397	\$96,273,808	\$104,274,047	\$112,633,719

Detailed data for each customer class showing revenue from charges is included in Appendix D, Table D-1 (Residential), Table D-2 (Domestic), Table D-3 (Irrigation) and Table D-4 (Private Fire Service).

The impact on customer bills is evaluated in the following sections.

## 5.2 Impact on Residential Bills

The impact on residential bills varies depending on whether the customer is unmetered or metered or converting from unmetered to metered through the planned rate increase periods.

### 5.2.1 Unmetered and Metered Single Family Monthly Bills

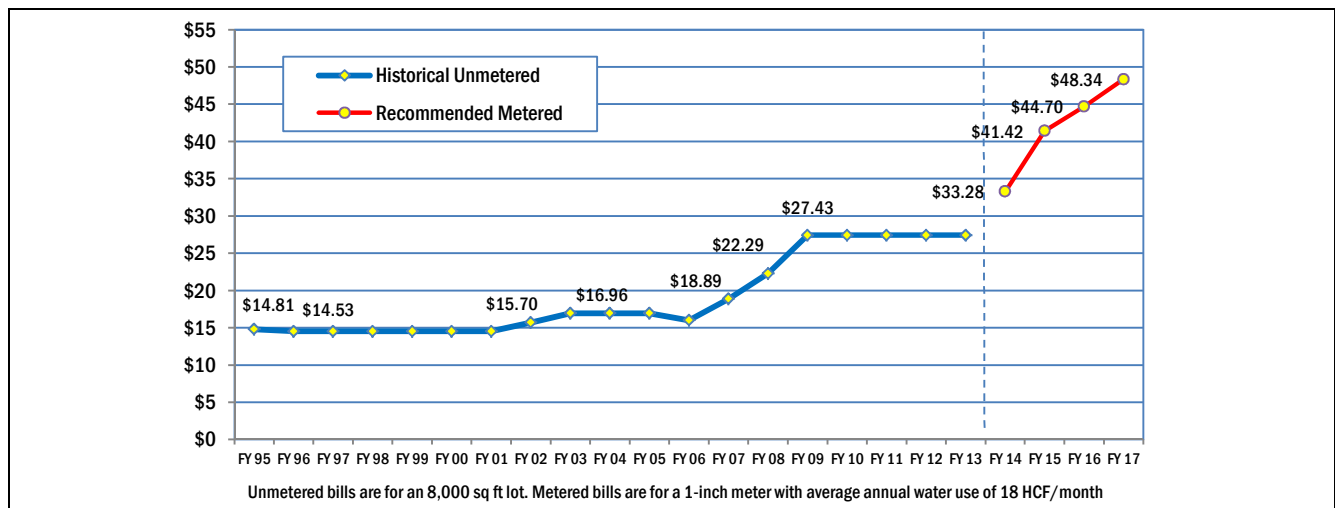
If a single family account remains unmetered through the planned rate increase periods (until it is converted to a metered account) or if a single family account has already been converted to a metered account, their rate structure (flat charges or meter charge plus quantity charge) remains the same and their bill is a function of only the rate increase (and, for metered customers, their water use). The impact for customers that are not converted is summarized in the table below.

**Table 5-2. Single Family Unmetered and Metered Average Annual Monthly Bills**

Year	Unmetered (sq ft lot)						1" Meter (HCF/mo)					
	6000	8000	14000	6000	8000	14000	11	18	36	11	18	36
Current	\$22.87	<b>\$27.43</b>	\$41.11	0%	<b>0%</b>	0%	\$20.22	<b>\$24.49</b>	\$40.33	0%	<b>0%</b>	14%
FY 14	\$28.32	<b>\$34.04</b>	\$51.20	24%	<b>24%</b>	25%	\$25.51	<b>\$33.28</b>	\$53.26	26%	<b>36%</b>	32%
FY 15	\$35.15	<b>\$42.25</b>	\$63.55	24%	<b>24%</b>	24%	\$31.69	<b>\$41.42</b>	\$66.44	24%	<b>24%</b>	25%
FY 16	\$37.85	<b>\$45.49</b>	\$68.41	8%	<b>8%</b>	8%	\$34.20	<b>\$44.70</b>	\$71.70	8%	<b>8%</b>	8%
FY 17	\$40.90	<b>\$49.14</b>	\$73.86	8%	<b>8%</b>	8%	\$36.93	<b>\$48.34</b>	\$77.68	8%	<b>8%</b>	8%
FY 18	\$44.21	<b>\$53.13</b>	\$79.89	8%	<b>8%</b>	8%	\$39.87	<b>\$52.26</b>	\$84.12	8%	<b>8%</b>	8%
FY 19	\$47.29	<b>\$56.83</b>	\$85.45	7%	<b>7%</b>	7%	\$42.60	<b>\$55.90</b>	\$90.10	7%	<b>7%</b>	7%
FY 20	\$48.69	<b>\$58.51</b>	\$87.97	3%	<b>3%</b>	3%	\$43.87	<b>\$57.66</b>	\$93.12	3%	<b>3%</b>	3%
FY 21	\$50.11	<b>\$60.21</b>	\$90.51	3%	<b>3%</b>	3%	\$45.14	<b>\$59.42</b>	\$96.14	3%	<b>3%</b>	3%
FY13 to FY17	\$18.03	<b>\$21.71</b>	\$32.75	79%	<b>79%</b>	80%	\$16.71	<b>\$23.85</b>	\$37.35	83%	<b>97%</b>	93%
4-Yr Avg Annual	\$4.51	<b>\$5.43</b>	\$8.19	20%	<b>20%</b>	20%	\$4.18	<b>\$5.96</b>	\$9.34	21%	<b>24%</b>	23%

### 5.2.2 Historical and Projected Single Family Monthly Bills

Projected bills for single family accounts with a metered connection (a 1-inch meter with 18 HCF/month average annual use) and historic bills for an unmetered connection (with an 8000 sq. ft. lot) are compared in the figure below. The average annual increase in bills from the FY 95 (\$14.81) to FY 17 (\$48.34) over 22 years is approximately 5.5%.



**Figure 5-1. Historical and Projected Single Family Monthly Bills**

## 5.3 Impact on Nonresidential, Domestic Bills

The impact on domestic bills varies depending on meter size and water use. Note that in FY 14, the percent increase in some bills will vary significantly from the percent increase in revenue from charges. The differences are due to system-wide conservation in water use, individual water use patterns and cost of service adjustments to meter charges. The impact on nonresidential domestic bills is summarized in the table below for two meter sizes using identical amounts of water.

Table 5-3. Nonresidential (Domestic) Average Annual Monthly Bills												
Year	1" Meter (HCF/mo)						1-½" Meter (HCF/mo)					
	11	18	36	11	18	36	11	18	36	11	18	36
Current	\$21.71	\$26.92	\$40.33	0%	0%	0%	\$27.09	\$32.30	\$45.71	0%	0%	0%
FY 14	\$26.31	\$34.08	\$54.06	21%	27%	34%	\$34.01	\$41.78	\$61.76	26%	29%	35%
FY15	\$32.79	\$42.52	\$67.54	25%	25%	25%	\$42.39	\$52.12	\$77.14	25%	25%	25%
FY16	\$35.30	\$45.80	\$72.80	8%	8%	8%	\$45.70	\$56.20	\$83.20	8%	8%	8%
FY17	\$38.23	\$49.64	\$78.98	8%	8%	8%	\$49.23	\$60.64	\$89.98	8%	8%	8%
FY18	\$41.27	\$53.66	\$85.52	8%	8%	8%	\$53.17	\$65.56	\$97.42	8%	8%	8%
FY19	\$44.10	\$57.40	\$91.60	7%	7%	7%	\$56.70	\$70.00	\$104.20	7%	7%	7%
FY20	\$45.37	\$59.16	\$94.62	3%	3%	3%	\$58.37	\$72.16	\$107.62	3%	3%	3%
FY21	\$46.74	\$61.02	\$97.74	3%	3%	3%	\$60.04	\$74.32	\$111.04	3%	3%	3%
FY13 to FY17	\$16.53	\$22.72	\$38.65	76%	84%	96%	\$22.15	\$28.34	\$44.27	82%	88%	97%
4-Yr Avg Annual	\$4.13	\$5.68	\$9.66	19%	21%	24%	\$5.54	\$7.09	\$11.07	20%	22%	24%

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## Section 6

# Limitations

This document was prepared solely for City of Fresno in accordance with professional standards at the time the services were performed and in accordance with the contract between City of Fresno and Municipal Financial Services dated June 3, 2010. This document is governed by the specific scope of work authorized by City of Fresno; it is not intended to be relied upon by any other party. We have relied on information or instructions provided by City of Fresno and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

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## Appendix A: Customer Characteristics

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**Table A-1**  
**Residential Non-Metered Conversions to Metered**

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**Table A-1**  
**Residential Non-Metered Conversions to Metered**

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Table A-1  
Residential Non-Metered Conversions to Metered

Item	Actual	Projected # Unmetered and Metered									
	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
<b>Growth in Accounts <sup>1,2</sup></b>											
<i>First 6,000 square feet or less of lot size</i>											
Commercial	9	9	9	9	9	9	9	9	9	9	9
Schools	0	0	0	0	0	0	0	0	0	0	0
Municipal	5	5	5	5	5	5	5	5	5	5	5
PUD/Condos	1,365	1,365	1,365	1,365	1,365	1,365	1,365	1,365	1,365	1,365	1,365
Multi-Residential	129	129	129	129	129	129	129	129	129	129	129
Single Family	95,108	95,468	95,833	96,448	97,073	97,708	98,353	99,008	99,673	100,348	101,033
Senior Citizen	13,505	13,554	13,604	13,688	13,774	13,861	13,950	14,040	14,131	14,223	14,317
<b>Total</b>	<b>110,121</b>	<b>110,530</b>	<b>110,945</b>	<b>111,644</b>	<b>112,355</b>	<b>113,077</b>	<b>113,811</b>	<b>114,556</b>	<b>115,312</b>	<b>116,079</b>	<b>116,858</b>
<i>Each additional 100 square feet</i>											
Commercial	0	0	0	0	0	0	0	0	0	0	0
Schools	0	0	0	0	0	0	0	0	0	0	0
Municipal	0	0	0	0	0	0	0	0	0	0	0
PUD/Condos	0	0	0	0	0	0	0	0	0	0	0
Multi-Residential	0	0	0	0	0	0	0	0	0	0	0
Single Family	2,820,081	2,830,755	2,841,578	2,859,814	2,878,346	2,897,175	2,916,300	2,935,721	2,955,439	2,975,454	2,995,765
Senior Citizen	444,357	445,969	447,614	450,378	453,208	456,071	458,999	461,960	464,954	467,981	471,074
<b>Total</b>	<b>3,264,438</b>	<b>3,276,725</b>	<b>3,289,193</b>	<b>3,310,192</b>	<b>3,331,554</b>	<b>3,353,245</b>	<b>3,375,299</b>	<b>3,397,681</b>	<b>3,420,394</b>	<b>3,443,436</b>	<b>3,466,840</b>
<b>Non-Metered Conversion to Metered <sup>3</sup></b>											
<i>First 6,000 square feet or less of lot size</i>											
Commercial	9	9	0	0	0	0	0	0	0	0	0
Schools	0	0	0	0	0	0	0	0	0	0	0
Municipal	5	5	0	0	0	0	0	0	0	0	0
PUD/Condos	1,365	765	165	0	0	0	0	0	0	0	0
Multi-Residential	129	79	29	0	0	0	0	0	0	0	0
Single Family	95,108	33,814	3,189	0	0	0	0	0	0	0	0
Senior Citizen	13,505	4,799	449	0	0	0	0	0	0	0	0
<b>Total</b>	<b>110,121</b>	<b>39,471</b>	<b>3,832</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<i>Additional 100 square feet</i>											
Commercial	0	0	0	0	0	0	0	0	0	0	0
Schools	0	0	0	0	0	0	0	0	0	0	0
Municipal	0	0	0	0	0	0	0	0	0	0	0
PUD/Condos	0	0	0	0	0	0	0	0	0	0	0
Multi-Residential	0	0	0	0	0	0	0	0	0	0	0
Single Family	2,820,081	1,006,417	94,923	0	0	0	0	0	0	0	0
Senior Citizen	444,357	158,485	14,825	0	0	0	0	0	0	0	0
<b>Total</b>	<b>3,264,438</b>	<b>1,164,902</b>	<b>109,747</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Metered</b>											
Commercial	0	0	9	9	9	9	9	9	9	9	9
Schools	0	0	0	0	0	0	0	0	0	0	0
Municipal	0	0	5	5	5	5	5	5	5	5	5
PUD/Condos	0	600	1,200	1,365	1,365	1,365	1,365	1,365	1,365	1,365	1,365
Multi-Residential	0	50	100	129	129	129	129	129	129	129	129
Single Family	0	61,654	92,644	96,448	97,073	97,708	98,353	99,008	99,673	100,348	101,033
Senior Citizen	0	8,755	13,155	13,688	13,774	13,861	13,950	14,040	14,131	14,223	14,317
<b>TOTAL</b>	<b>0</b>	<b>71,059</b>	<b>107,113</b>	<b>111,644</b>	<b>112,355</b>	<b>113,077</b>	<b>113,811</b>	<b>114,556</b>	<b>115,312</b>	<b>116,079</b>	<b>116,858</b>

Table A-1  
Residential Non-Metered Conversions to Metered

Notes:

- 1 Actual FY10 data was provided by the City. Detailed data showing the number of units for each Additional 100 Square Feet is shown in Table A-2.  
The number of accounts includes only active accounts.

- 2 The growth in accounts is based on data from HTE for FY06, FY07, FY08 and FY09 shown below:

	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	<u>4-Yr Avg</u>
<i>Commercial &gt;</i>	8	10	7	8	7	0
<i>Schools &gt;</i>	0	0	0	0	0	0
<i>Municipal &gt;</i>	6	7	8	7	7	0
<i>PUD/Condos &gt;</i>	1,425	1,423	1,407	1,397	1,388	-9
<i>Multi-Residential &gt;</i>	163	138	137	138	129	-9
<i>Single Family &gt;</i>	89,839	91,538	93,438	93,916	95,021	1,296
<i>Senior Citizen &gt;</i>	<u>11,342</u>	<u>11,086</u>	<u>11,602</u>	<u>12,267</u>	<u>12,948</u>	<u>402</u>
<i>total # non-metered accounts &gt;</i>	102,783	104,202	106,599	107,733	110,724	1,985
<i>annual # change &gt;</i>		1,419	2,397	1,134	2,991	1,985
<i>annual % change &gt;</i>		1.4%	2.3%	1.1%	2.8%	1.9%

- 3 The number of accounts converted from non-metered to metered billing was provided by the City.

<u>FY11</u>	<u>FY12</u>	<u>FY13</u>	<u>FY14</u>	<u>Total</u>
5,970	70,000	34,975	0	110,945

Table A-2  
FY10 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
1	6,100	3,261	3,261	\$8,922	1	6,100	334	334	\$818
2	6,200	3,390	6,780	\$18,550	2	6,200	324	648	\$1,586
3	6,300	5,465	16,395	\$44,857	3	6,300	521	1,563	\$3,826
4	6,400	3,091	12,364	\$33,828	4	6,400	302	1,208	\$2,957
5	6,500	3,527	17,635	\$48,249	5	6,500	357	1,785	\$4,370
6	6,600	3,294	19,764	\$54,074	6	6,600	366	2,196	\$5,376
7	6,700	2,312	16,184	\$44,279	7	6,700	259	1,813	\$4,438
8	6,800	3,475	27,800	\$76,061	8	6,800	370	2,960	\$7,246
9	6,900	2,204	19,836	\$54,271	9	6,900	239	2,151	\$5,266
10	7,000	2,190	21,900	\$59,918	10	7,000	227	2,270	\$5,557
11	7,100	1,745	19,195	\$52,518	11	7,100	214	2,354	\$5,763
12	7,200	2,494	29,928	\$81,883	12	7,200	344	4,128	\$10,105
13	7,300	1,707	22,191	\$60,715	13	7,300	186	2,418	\$5,919
14	7,400	1,833	25,662	\$70,211	14	7,400	202	2,828	\$6,923
15	7,500	3,603	54,045	\$147,867	15	7,500	457	6,855	\$16,781
16	7,600	1,607	25,712	\$70,348	16	7,600	203	3,248	\$7,951
17	7,700	1,583	26,911	\$73,628	17	7,700	196	3,332	\$8,157
18	7,800	1,599	28,782	\$78,748	18	7,800	195	3,510	\$8,592
19	7,900	1,405	26,695	\$73,038	19	7,900	176	3,344	\$8,186
20	8,000	1,502	30,040	\$82,189	20	8,000	179	3,580	\$8,764
21	8,100	2,935	61,635	\$168,633	21	8,100	417	8,757	\$21,437
22	8,200	1,121	24,662	\$67,475	22	8,200	147	3,234	\$7,917
23	8,300	794	18,262	\$49,965	23	8,300	105	2,415	\$5,912
24	8,400	884	21,216	\$58,047	24	8,400	110	2,640	\$6,463
25	8,500	966	24,150	\$66,074	25	8,500	100	2,500	\$6,120
26	8,600	851	22,126	\$60,537	26	8,600	113	2,938	\$7,192
27	8,700	670	18,090	\$49,494	27	8,700	77	2,079	\$5,089
28	8,800	987	27,636	\$75,612	28	8,800	139	3,892	\$9,528
29	8,900	631	18,299	\$50,066	29	8,900	70	2,030	\$4,969
30	9,000	1,263	37,890	\$103,667	30	9,000	169	5,070	\$12,411
31	9,100	710	22,010	\$60,219	31	9,100	94	2,914	\$7,133
32	9,200	783	25,056	\$68,553	32	9,200	103	3,296	\$8,069
33	9,300	508	16,764	\$45,866	33	9,300	73	2,409	\$5,897
34	9,400	746	25,364	\$69,396	34	9,400	103	3,502	\$8,573
35	9,500	736	25,760	\$70,479	35	9,500	93	3,255	\$7,968
36	9,600	595	21,420	\$58,605	36	9,600	81	2,916	\$7,138
37	9,700	547	20,239	\$55,374	37	9,700	71	2,627	\$6,431
38	9,800	768	29,184	\$79,847	38	9,800	135	5,130	\$12,558
39	9,900	656	25,584	\$69,998	39	9,900	102	3,978	\$9,738
40	10,000	699	27,960	\$76,499	40	10,000	101	4,040	\$9,890
41	10,100	604	24,764	\$67,754	41	10,100	101	4,141	\$10,137
42	10,200	600	25,200	\$68,947	42	10,200	62	2,604	\$6,375
43	10,300	352	15,136	\$41,412	43	10,300	51	2,193	\$5,368
44	10,400	506	22,264	\$60,914	44	10,400	75	3,300	\$8,078
45	10,500	407	18,315	\$50,110	45	10,500	63	2,835	\$6,940
46	10,600	382	17,572	\$48,077	46	10,600	55	2,530	\$6,193
47	10,700	284	13,348	\$36,520	47	10,700	40	1,880	\$4,602
48	10,800	375	18,000	\$49,248	48	10,800	56	2,688	\$6,580
49	10,900	345	16,905	\$46,252	49	10,900	31	1,519	\$3,719
50	11,000	274	13,700	\$37,483	50	11,000	39	1,950	\$4,774
51	11,100	296	15,096	\$41,303	51	11,100	36	1,836	\$4,495
52	11,200	267	13,884	\$37,987	52	11,200	36	1,872	\$4,583
53	11,300	351	18,603	\$50,898	53	11,300	51	2,703	\$6,617
54	11,400	207	11,178	\$30,583	54	11,400	31	1,674	\$4,098
55	11,500	231	12,705	\$34,761	55	11,500	35	1,925	\$4,712
56	11,600	215	12,040	\$32,941	56	11,600	20	1,120	\$2,742
57	11,700	195	11,115	\$30,411	57	11,700	33	1,881	\$4,605
58	11,800	206	11,948	\$32,690	58	11,800	30	1,740	\$4,260
59	11,900	227	13,393	\$36,643	59	11,900	30	1,770	\$4,333
60	12,000	354	21,240	\$58,113	60	12,000	60	3,600	\$8,813
61	12,100	219	13,359	\$36,550	61	12,100	28	1,708	\$4,181
62	12,200	228	14,136	\$38,676	62	12,200	25	1,550	\$3,794
63	12,300	183	11,529	\$31,543	63	12,300	13	819	\$2,005
64	12,400	169	10,816	\$29,593	64	12,400	25	1,600	\$3,917
65	12,500	462	30,030	\$82,162	65	12,500	73	4,745	\$11,616
66	12,600	447	29,502	\$80,717	66	12,600	76	5,016	\$12,279
67	12,700	357	23,919	\$65,442	67	12,700	44	2,948	\$7,217
68	12,800	276	18,768	\$51,349	68	12,800	37	2,516	\$6,159
69	12,900	208	14,352	\$39,267	69	12,900	41	2,829	\$6,925
70	13,000	367	25,690	\$70,288	70	13,000	63	4,410	\$10,796
71	13,100	284	20,164	\$55,169	71	13,100	42	2,982	\$7,300
72	13,200	259	18,648	\$51,021	72	13,200	56	4,032	\$9,870
73	13,300	254	18,542	\$50,731	73	13,300	42	3,066	\$7,506
74	13,400	231	17,094	\$46,769	74	13,400	43	3,182	\$7,790
75	13,500	344	25,800	\$70,589	75	13,500	73	5,475	\$13,403
76	13,600	219	16,644	\$45,538	76	13,600	42	3,192	\$7,814

Table A-2  
FY10 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
77	13,700	179	13,783	\$37,710	77	13,700	21	1,617	\$3,958
78	13,800	245	19,110	\$52,285	78	13,800	41	3,198	\$7,829
79	13,900	162	12,798	\$35,015	79	13,900	24	1,896	\$4,641
80	14,000	263	21,040	\$57,565	80	14,000	42	3,360	\$8,225
81	14,100	130	10,530	\$28,810	81	14,100	24	1,944	\$4,759
82	14,200	227	18,614	\$50,928	82	14,200	34	2,788	\$6,825
83	14,300	248	20,584	\$56,318	83	14,300	40	3,320	\$8,127
84	14,400	196	16,464	\$45,046	84	14,400	31	2,604	\$6,375
85	14,500	157	13,345	\$36,512	85	14,500	33	2,805	\$6,867
86	14,600	203	17,458	\$47,765	86	14,600	40	3,440	\$8,421
87	14,700	170	14,790	\$40,465	87	14,700	30	2,610	\$6,389
88	14,800	219	19,272	\$52,728	88	14,800	37	3,256	\$7,971
89	14,900	138	12,282	\$33,604	89	14,900	19	1,691	\$4,140
90	15,000	267	24,030	\$65,746	90	15,000	52	4,680	\$11,457
91	15,100	173	15,743	\$43,073	91	15,100	33	3,003	\$7,351
92	15,200	153	14,076	\$38,512	92	15,200	21	1,932	\$4,730
93	15,300	130	12,090	\$33,078	93	15,300	17	1,581	\$3,870
94	15,400	141	13,254	\$36,263	94	15,400	26	2,444	\$5,983
95	15,500	163	15,485	\$42,367	95	15,500	20	1,900	\$4,651
96	15,600	130	12,480	\$34,145	96	15,600	26	2,496	\$6,110
97	15,700	114	11,058	\$30,255	97	15,700	26	2,522	\$6,174
98	15,800	140	13,720	\$37,538	98	15,800	31	3,038	\$7,437
99	15,900	100	9,900	\$27,086	99	15,900	23	2,277	\$5,574
100	16,000	191	19,100	\$52,258	100	16,000	47	4,700	\$11,506
101	16,100	153	15,453	\$42,279	101	16,100	20	2,020	\$4,945
102	16,200	234	23,868	\$65,303	102	16,200	42	4,284	\$10,487
103	16,300	143	14,729	\$40,299	103	16,300	36	3,708	\$9,077
104	16,400	139	14,456	\$39,552	104	16,400	27	2,808	\$6,874
105	16,500	81	8,505	\$23,270	105	16,500	18	1,890	\$4,627
106	16,600	84	8,904	\$24,361	106	16,600	12	1,272	\$3,114
107	16,700	69	7,383	\$20,200	107	16,700	9	963	\$2,357
108	16,800	93	10,044	\$27,480	108	16,800	20	2,160	\$5,288
109	16,900	96	10,464	\$28,630	109	16,900	24	2,616	\$6,404
110	17,000	78	8,580	\$23,475	110	17,000	15	1,650	\$4,039
111	17,100	60	6,660	\$18,222	111	17,100	6	666	\$1,630
112	17,200	66	7,392	\$20,225	112	17,200	12	1,344	\$3,290
113	17,300	74	8,362	\$22,878	113	17,300	16	1,808	\$4,426
114	17,400	61	6,954	\$19,026	114	17,400	8	912	\$2,233
115	17,500	86	9,890	\$27,059	115	17,500	13	1,495	\$3,660
116	17,600	96	11,136	\$30,468	116	17,600	19	2,204	\$5,395
117	17,700	52	6,084	\$16,646	117	17,700	5	585	\$1,432
118	17,800	98	11,564	\$31,639	118	17,800	18	2,124	\$5,200
119	17,900	48	5,712	\$15,628	119	17,900	12	1,428	\$3,496
120	18,000	104	12,480	\$34,145	120	18,000	20	2,400	\$5,875
121	18,100	20	2,420	\$6,621	121	18,100	1	121	\$296
122	18,200	62	7,564	\$20,695	122	18,200	10	1,220	\$2,987
123	18,300	44	5,412	\$14,807	123	18,300	7	861	\$2,108
124	18,400	20	2,480	\$6,785	124	18,400	2	248	\$607
125	18,500	52	6,500	\$17,784	125	18,500	12	1,500	\$3,672
126	18,600	28	3,528	\$9,653	126	18,600	6	756	\$1,851
127	18,700	27	3,429	\$9,382	127	18,700	1	127	\$311
128	18,800	40	5,120	\$14,008	128	18,800	9	1,152	\$2,820
129	18,900	39	5,031	\$13,765	129	18,900	6	774	\$1,895
130	19,000	39	5,070	\$13,872	130	19,000	3	390	\$955
131	19,100	41	5,371	\$14,695	131	19,100	7	917	\$2,245
132	19,200	44	5,808	\$15,891	132	19,200	6	792	\$1,939
133	19,300	26	3,458	\$9,461	133	19,300	4	532	\$1,302
134	19,400	28	3,752	\$10,265	134	19,400	9	1,206	\$2,952
135	19,500	50	6,750	\$18,468	135	19,500	6	810	\$1,983
136	19,600	26	3,536	\$9,674	136	19,600	2	272	\$666
137	19,700	19	2,603	\$7,122	137	19,700	5	685	\$1,677
138	19,800	25	3,450	\$9,439	138	19,800	3	414	\$1,013
139	19,900	27	3,753	\$10,268	139	19,900	4	556	\$1,361
140	20,000	103	14,420	\$39,453	140	20,000	10	1,400	\$3,427
141	20,100	50	7,050	\$19,289	141	20,100	8	1,128	\$2,761
142	20,200	39	5,538	\$15,152	142	20,200	7	994	\$2,433
143	20,300	46	6,578	\$17,997	143	20,300	4	572	\$1,400
144	20,400	35	5,040	\$13,789	144	20,400	8	1,152	\$2,820
145	20,500	18	2,610	\$7,141	145	20,500	4	580	\$1,420
146	20,600	22	3,212	\$8,788	146	20,600	4	584	\$1,430
147	20,700	17	2,499	\$6,837	147	20,700	3	441	\$1,080
148	20,800	28	4,144	\$11,338	148	20,800	9	1,332	\$3,261
149	20,900	29	4,321	\$11,822	149	20,900	2	298	\$730
150	21,000	40	6,000	\$16,416	150	21,000	9	1,350	\$3,305
151	21,100	16	2,416	\$6,610	151	21,100	2	302	\$739
152	21,200	15	2,280	\$6,238	153	21,300	4	612	\$1,498



Table A-2  
FY10 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
153	21,300	20	3,060	\$8,372	154	21,400	10	1,540	\$3,770
154	21,400	37	5,698	\$15,590	155	21,500	2	310	\$759
155	21,500	28	4,340	\$11,874	156	21,600	5	780	\$1,909
156	21,600	29	4,524	\$12,378	157	21,700	9	1,413	\$3,459
157	21,700	31	4,867	\$13,316	158	21,800	7	1,106	\$2,707
158	21,800	22	3,476	\$9,510	160	22,000	4	640	\$1,567
159	21,900	7	1,113	\$3,045	161	22,100	3	483	\$1,182
160	22,000	25	4,000	\$10,944	162	22,200	3	486	\$1,190
161	22,100	13	2,093	\$5,726	163	22,300	2	326	\$798
162	22,200	10	1,620	\$4,432	164	22,400	4	656	\$1,606
163	22,300	14	2,282	\$6,244	165	22,500	3	495	\$1,212
164	22,400	24	3,936	\$10,769	166	22,600	3	498	\$1,219
165	22,500	28	4,620	\$12,640	167	22,700	2	334	\$818
166	22,600	12	1,992	\$5,450	168	22,800	1	168	\$411
167	22,700	13	2,171	\$5,940	169	22,900	2	338	\$827
168	22,800	6	1,008	\$2,758	170	23,000	2	340	\$832
169	22,900	14	2,366	\$6,473	171	23,100	2	342	\$837
170	23,000	22	3,740	\$10,233	172	23,200	2	344	\$842
171	23,100	17	2,907	\$7,954	173	23,300	3	519	\$1,271
172	23,200	6	1,032	\$2,824	174	23,400	1	174	\$426
173	23,300	10	1,730	\$4,733	175	23,500	5	875	\$2,142
174	23,400	5	870	\$2,380	176	23,600	3	528	\$1,293
175	23,500	14	2,450	\$6,703	177	23,700	1	177	\$433
176	23,600	8	1,408	\$3,852	178	23,800	2	356	\$871
177	23,700	7	1,239	\$3,390	180	24,000	11	1,980	\$4,847
178	23,800	11	1,958	\$5,357	181	24,100	1	181	\$443
179	23,900	5	895	\$2,449	182	24,200	1	182	\$446
180	24,000	34	6,120	\$16,744	184	24,400	1	184	\$450
181	24,100	13	2,353	\$6,438	185	24,500	2	370	\$906
182	24,200	8	1,456	\$3,984	187	24,700	1	187	\$458
183	24,300	10	1,830	\$5,007	189	24,900	4	756	\$1,851
184	24,400	11	2,024	\$5,538	190	25,000	2	380	\$930
185	24,500	15	2,775	\$7,592	191	25,100	1	191	\$468
186	24,600	4	744	\$2,036	192	25,200	1	192	\$470
187	24,700	6	1,122	\$3,070	193	25,300	2	386	\$945
188	24,800	6	1,128	\$3,086	194	25,400	3	582	\$1,425
189	24,900	6	1,134	\$3,103	195	25,500	8	1,560	\$3,819
190	25,000	10	1,900	\$5,198	196	25,600	1	196	\$480
191	25,100	5	955	\$2,613	197	25,700	7	1,379	\$3,376
192	25,200	6	1,152	\$3,152	198	25,800	3	594	\$1,454
193	25,300	6	1,158	\$3,168	199	25,900	2	398	\$974
194	25,400	14	2,716	\$7,431	200	26,000	2	400	\$979
195	25,500	37	7,215	\$19,740	201	26,100	2	402	\$984
196	25,600	14	2,744	\$7,508	202	26,200	2	404	\$989
197	25,700	27	5,319	\$14,553	203	26,300	2	406	\$994
198	25,800	10	1,980	\$5,417	204	26,400	2	408	\$999
199	25,900	9	1,791	\$4,900	205	26,500	1	205	\$502
200	26,000	11	2,200	\$6,019	206	26,600	2	412	\$1,009
201	26,100	6	1,206	\$3,300	207	26,700	1	207	\$507
202	26,200	12	2,424	\$6,632	208	26,800	4	832	\$2,037
203	26,300	15	3,045	\$8,331	209	26,900	1	209	\$512
204	26,400	5	1,020	\$2,791	210	27,000	4	840	\$2,056
205	26,500	6	1,230	\$3,365	212	27,200	4	848	\$2,076
206	26,600	15	3,090	\$8,454	213	27,300	1	213	\$521
207	26,700	5	1,035	\$2,832	214	27,400	3	642	\$1,572
208	26,800	7	1,456	\$3,984	215	27,500	1	215	\$526
209	26,900	10	2,090	\$5,718	216	27,600	1	216	\$529
210	27,000	16	3,360	\$9,193	217	27,700	1	217	\$531
211	27,100	1	211	\$577	218	27,800	1	218	\$534
212	27,200	19	4,028	\$11,021	219	27,900	1	219	\$536
213	27,300	5	1,065	\$2,914	220	28,000	5	1,100	\$2,693
214	27,400	7	1,498	\$4,099	221	28,100	1	221	\$541
215	27,500	6	1,290	\$3,529	223	28,300	2	446	\$1,092
216	27,600	5	1,080	\$2,955	224	28,400	2	448	\$1,097
217	27,700	2	434	\$1,187	225	28,500	2	450	\$1,102
218	27,800	4	872	\$2,386	226	28,600	1	226	\$553
219	27,900	3	657	\$1,798	228	28,800	2	456	\$1,116
220	28,000	21	4,620	\$12,640	229	28,900	1	229	\$561
221	28,100	3	663	\$1,814	230	29,000	2	460	\$1,126
222	28,200	3	666	\$1,822	231	29,100	1	231	\$565
223	28,300	7	1,561	\$4,271	232	29,200	1	232	\$568
224	28,400	4	896	\$2,451	233	29,300	1	233	\$570
225	28,500	12	2,700	\$7,387	235	29,500	2	470	\$1,151
226	28,600	3	678	\$1,855	237	29,700	1	237	\$580
227	28,700	3	681	\$1,863	239	29,900	2	478	\$1,170
228	28,800	7	1,596	\$4,367	240	30,000	22	5,280	\$12,925

Table A-2  
FY10 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
229	28,900	6	1,374	\$3,759	242	30,200	2	484	\$1,185
230	29,000	8	1,840	\$5,034	243	30,300	1	243	\$595
231	29,100	6	1,386	\$3,792	245	30,500	2	490	\$1,200
232	29,200	6	1,392	\$3,809	246	30,600	1	246	\$602
233	29,300	9	2,097	\$5,737	251	31,100	2	502	\$1,229
234	29,400	9	2,106	\$5,762	256	31,600	2	512	\$1,253
235	29,500	5	1,175	\$3,215	258	31,800	3	774	\$1,895
236	29,600	4	944	\$2,583	260	32,000	2	520	\$1,273
237	29,700	6	1,422	\$3,891	261	32,100	2	522	\$1,278
238	29,800	5	1,190	\$3,256	262	32,200	1	262	\$641
239	29,900	6	1,434	\$3,923	264	32,400	1	264	\$646
240	30,000	64	15,360	\$42,025	266	32,600	1	266	\$651
241	30,100	2	482	\$1,319	269	32,900	2	538	\$1,317
242	30,200	10	2,420	\$6,621	270	33,000	1	270	\$661
243	30,300	2	486	\$1,330	274	33,400	1	274	\$671
244	30,400	2	488	\$1,335	277	33,700	2	554	\$1,356
245	30,500	14	3,430	\$9,384	280	34,000	2	560	\$1,371
246	30,600	5	1,230	\$3,365	281	34,100	2	562	\$1,376
247	30,700	3	741	\$2,027	282	34,200	2	564	\$1,381
248	30,800	3	744	\$2,036	284	34,400	3	852	\$2,086
249	30,900	1	249	\$681	285	34,500	1	285	\$698
250	31,000	3	750	\$2,052	287	34,700	4	1,148	\$2,810
251	31,100	5	1,255	\$3,434	289	34,900	1	289	\$707
252	31,200	2	504	\$1,379	290	35,000	1	290	\$710
253	31,300	8	2,024	\$5,538	293	35,300	2	586	\$1,435
254	31,400	3	762	\$2,085	295	35,500	3	885	\$2,166
255	31,500	2	510	\$1,395	296	35,600	4	1,184	\$2,898
256	31,600	7	1,792	\$4,903	297	35,700	2	594	\$1,454
257	31,700	3	771	\$2,109	298	35,800	3	894	\$2,189
258	31,800	8	2,064	\$5,647	299	35,900	3	897	\$2,196
259	31,900	4	1,036	\$2,834	300	36,000	6	1,800	\$4,406
260	32,000	16	4,160	\$11,382	301	36,100	1	301	\$737
261	32,100	3	783	\$2,142	303	36,300	2	606	\$1,483
262	32,200	6	1,572	\$4,301	307	36,700	1	307	\$752
263	32,300	5	1,315	\$3,598	308	36,800	4	1,232	\$3,016
264	32,400	5	1,320	\$3,612	311	37,100	3	933	\$2,284
265	32,500	2	530	\$1,450	314	37,400	1	314	\$769
266	32,600	2	532	\$1,456	315	37,500	2	630	\$1,542
267	32,700	1	267	\$731	316	37,600	3	948	\$2,321
269	32,900	5	1,345	\$3,680	317	37,700	1	317	\$776
270	33,000	5	1,350	\$3,694	318	37,800	2	636	\$1,557
271	33,100	5	1,355	\$3,707	319	37,900	2	638	\$1,562
272	33,200	1	272	\$744	320	38,000	2	640	\$1,567
274	33,400	1	274	\$750	321	38,100	1	321	\$786
275	33,500	3	825	\$2,257	324	38,400	1	324	\$793
276	33,600	4	1,104	\$3,021	325	38,500	2	650	\$1,591
277	33,700	7	1,939	\$5,305	326	38,600	3	978	\$2,394
278	33,800	5	1,390	\$3,803	327	38,700	1	327	\$800
279	33,900	1	279	\$763	328	38,800	1	328	\$803
280	34,000	5	1,400	\$3,830	329	38,900	2	658	\$1,611
281	34,100	13	3,653	\$9,995	336	39,600	1	336	\$823
282	34,200	15	4,230	\$11,573	337	39,700	1	337	\$825
283	34,300	2	566	\$1,549	338	39,800	1	338	\$827
284	34,400	4	1,136	\$3,108	339	39,900	2	678	\$1,660
285	34,500	1	285	\$780	340	40,000	1	340	\$832
286	34,600	1	286	\$782	341	40,100	1	341	\$835
287	34,700	5	1,435	\$3,926	350	41,000	1	350	\$857
288	34,800	1	288	\$788	352	41,200	1	352	\$862
289	34,900	3	867	\$2,372	353	41,300	1	353	\$864
290	35,000	10	2,900	\$7,934	354	41,400	1	354	\$867
292	35,200	6	1,752	\$4,793	358	41,800	1	358	\$876
293	35,300	4	1,172	\$3,207	360	42,000	1	360	\$881
294	35,400	5	1,470	\$4,022	362	42,200	1	362	\$886
295	35,500	10	2,950	\$8,071	365	42,500	1	365	\$894
296	35,600	18	5,328	\$14,577	372	43,200	2	744	\$1,821
297	35,700	12	3,564	\$9,751	380	44,000	1	380	\$930
298	35,800	4	1,192	\$3,261	385	44,500	1	385	\$942
299	35,900	8	2,392	\$6,545	387	44,700	1	387	\$947
300	36,000	34	10,200	\$27,907	389	44,900	2	778	\$1,905
301	36,100	5	1,505	\$4,118	396	45,600	1	396	\$969
302	36,200	7	2,114	\$5,784	400	46,000	1	400	\$979
303	36,300	9	2,727	\$7,461	413	47,300	1	413	\$1,011
304	36,400	4	1,216	\$3,327	417	47,700	1	417	\$1,021
305	36,500	1	305	\$834	424	48,400	1	424	\$1,038
306	36,600	4	1,224	\$3,349	431	49,100	1	431	\$1,055
307	36,700	5	1,535	\$4,200	440	50,000	1	440	\$1,077

Table A-2

FY10 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
308	36,800	6	1,848	\$5,056	441	50,100	1	441	\$1,080
309	36,900	2	618	\$1,691	442	50,200	1	442	\$1,082
310	37,000	3	930	\$2,544	445	50,500	2	890	\$2,179
311	37,100	5	1,555	\$4,254	449	50,900	2	898	\$2,198
312	37,200	2	624	\$1,707	451	51,100	2	902	\$2,208
313	37,300	1	313	\$856	452	51,200	1	452	\$1,106
314	37,400	3	942	\$2,577	463	52,300	1	463	\$1,133
315	37,500	23	7,245	\$19,822	464	52,400	1	464	\$1,136
316	37,600	18	5,688	\$15,562	489	54,900	1	489	\$1,197
317	37,700	6	1,902	\$5,204	537	59,700	1	537	\$1,315
318	37,800	7	2,226	\$6,090	550	61,000	1	550	\$1,346
319	37,900	5	1,595	\$4,364	580	64,000	1	580	\$1,420
320	38,000	6	1,920	\$5,253	618	67,800	1	618	\$1,513
321	38,100	2	642	\$1,757	641	70,100	1	641	\$1,569
322	38,200	7	2,254	\$6,167	657	71,700	1	657	\$1,608
323	38,300	5	1,615	\$4,419	658	71,800	1	658	\$1,611
324	38,400	4	1,296	\$3,546	680	74,000	1	680	\$1,665
325	38,500	9	2,925	\$8,003	716	77,600	1	716	\$1,753
326	38,600	6	1,956	\$5,352	755	81,500	1	755	\$1,848
327	38,700	3	981	\$2,684					
328	38,800	9	2,952	\$8,077					
329	38,900	5	1,645	\$4,501					
330	39,000	5	1,650	\$4,514					
331	39,100	1	331	\$906					
332	39,200	4	1,328	\$3,633					
333	39,300	3	999	\$2,733					
334	39,400	2	668	\$1,828					
335	39,500	4	1,340	\$3,666					
336	39,600	4	1,344	\$3,677					
337	39,700	2	674	\$1,844					
338	39,800	2	676	\$1,850					
339	39,900	4	1,356	\$3,710					
340	40,000	8	2,720	\$7,442					
341	40,100	4	1,364	\$3,732					
342	40,200	2	684	\$1,871					
343	40,300	1	343	\$938					
344	40,400	1	344	\$941					
345	40,500	2	690	\$1,888					
346	40,600	2	692	\$1,893					
347	40,700	2	694	\$1,899					
348	40,800	2	696	\$1,904					
349	40,900	2	698	\$1,910					
350	41,000	1	350	\$958					
351	41,100	1	351	\$960					
352	41,200	3	1,056	\$2,889					
353	41,300	1	353	\$966					
354	41,400	1	354	\$969					
356	41,600	3	1,068	\$2,922					
357	41,700	1	357	\$977					
358	41,800	3	1,074	\$2,938					
359	41,900	4	1,436	\$3,929					
360	42,000	3	1,080	\$2,955					
362	42,200	2	724	\$1,981					
364	42,400	1	364	\$996					
365	42,500	4	1,460	\$3,995					
369	42,900	2	738	\$2,019					
372	43,200	4	1,488	\$4,071					
374	43,400	3	1,122	\$3,070					
375	43,500	1	375	\$1,026					
376	43,600	5	1,880	\$5,144					
377	43,700	4	1,508	\$4,126					
378	43,800	1	378	\$1,034					
379	43,900	3	1,137	\$3,111					
380	44,000	4	1,520	\$4,159					
382	44,200	2	764	\$2,090					
383	44,300	2	766	\$2,096					
385	44,500	1	385	\$1,053					
387	44,700	3	1,161	\$3,176					
388	44,800	1	388	\$1,062					
389	44,900	3	1,167	\$3,193					
390	45,000	5	1,950	\$5,335					
391	45,100	1	391	\$1,070					
392	45,200	1	392	\$1,073					
393	45,300	3	1,179	\$3,226					
396	45,600	3	1,188	\$3,250					
397	45,700	2	794	\$2,172					

Table A-2  
FY10 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
400	46,000	2	800	\$2,189					
402	46,200	2	804	\$2,200					
403	46,300	2	806	\$2,205					
405	46,500	3	1,215	\$3,324					
406	46,600	2	812	\$2,222					
408	46,800	2	816	\$2,233					
410	47,000	2	820	\$2,244					
412	47,200	1	412	\$1,127					
413	47,300	2	826	\$2,260					
417	47,700	2	834	\$2,282					
419	47,900	3	1,257	\$3,439					
420	48,000	4	1,680	\$4,596					
423	48,300	1	423	\$1,157					
424	48,400	3	1,272	\$3,480					
425	48,500	1	425	\$1,163					
428	48,800	2	856	\$2,342					
430	49,000	1	430	\$1,176					
431	49,100	2	862	\$2,358					
435	49,500	1	435	\$1,190					
436	49,600	1	436	\$1,193					
440	50,000	1	440	\$1,204					
441	50,100	2	882	\$2,413					
442	50,200	2	884	\$2,419					
443	50,300	1	443	\$1,212					
445	50,500	3	1,335	\$3,653					
449	50,900	2	898	\$2,457					
450	51,000	2	900	\$2,462					
451	51,100	3	1,353	\$3,702					
452	51,200	1	452	\$1,237					
454	51,400	1	454	\$1,242					
456	51,600	1	456	\$1,248					
457	51,700	1	457	\$1,250					
463	52,300	1	463	\$1,267					
464	52,400	2	928	\$2,539					
465	52,500	1	465	\$1,272					
467	52,700	2	934	\$2,555					
470	53,000	2	940	\$2,572					
471	53,100	2	942	\$2,577					
475	53,500	1	475	\$1,300					
478	53,800	1	478	\$1,308					
480	54,000	4	1,920	\$5,253					
482	54,200	1	482	\$1,319					
483	54,300	1	483	\$1,321					
484	54,400	3	1,452	\$3,973					
489	54,900	3	1,467	\$4,014					
490	55,000	1	490	\$1,341					
498	55,800	2	996	\$2,725					
502	56,200	2	1,004	\$2,747					
503	56,300	1	503	\$1,376					
506	56,600	1	506	\$1,384					
511	57,100	1	511	\$1,398					
512	57,200	1	512	\$1,401					
514	57,400	1	514	\$1,406					
523	58,300	1	523	\$1,431					
537	59,700	3	1,611	\$4,408					
545	60,500	1	545	\$1,491					
550	61,000	1	550	\$1,505					
558	61,800	1	558	\$1,527					
559	61,900	1	559	\$1,529					
562	62,200	1	562	\$1,538					
564	62,400	1	564	\$1,543					
567	62,700	1	567	\$1,551					
571	63,100	1	571	\$1,562					
575	63,500	1	575	\$1,573					
580	64,000	1	580	\$1,587					
581	64,100	1	581	\$1,590					
584	64,400	1	584	\$1,598					
590	65,000	1	590	\$1,614					
599	65,900	1	599	\$1,639					
606	66,600	1	606	\$1,658					
618	67,800	1	618	\$1,691					
624	68,400	1	624	\$1,707					
630	69,000	1	630	\$1,724					
641	70,100	3	1,923	\$5,261					
657	71,700	1	657	\$1,798					
658	71,800	1	658	\$1,800					

Table A-2  
FY10 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
660	72,000	1	660	\$1,806					
680	74,000	2	1,360	\$3,721					
685	74,500	1	685	\$1,874					
687	74,700	1	687	\$1,880					
694	75,400	1	694	\$1,899					
709	76,900	1	709	\$1,940					
716	77,600	1	716	\$1,959					
726	78,600	1	726	\$1,986					
741	80,100	1	741	\$2,027					
745	80,500	1	745	\$2,038					
750	81,000	1	750	\$2,052					
755	81,500	1	755	\$2,066					
757	81,700	1	757	\$2,071					
789	84,900	2	1,578	\$4,317					
791	85,100	1	791	\$2,164					
794	85,400	1	794	\$2,172					
802	86,200	2	1,604	\$4,389					
821	88,100	1	821	\$2,246					
930	99,000	2	1,860	\$5,089					
933	99,300	1	933	\$2,553					
950	101,000	1	950	\$2,599					
968	102,800	1	968	\$2,648					
1029	108,900	1	1,029	\$2,815					
1042	110,200	1	1,042	\$2,851					
1225	128,500	1	1,225	\$3,352					
1317	137,700	1	1,317	\$3,603					
Totals		89,423	2,804,713	\$7,673,695			11,346	438,982	\$1,074,628
Summary									
Customer Class		# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF					
Single Family		89,423	2,804,713	\$7,673,695					
Senior Citizen		11,346	438,982	\$1,074,628					
Total		100,769	3,243,695	\$8,748,323					

Table A-3  
FY11 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
1	6,100	3,259	3,259	\$8,917	1	6,100	331	331	\$810
2	6,200	3,394	6,788	\$18,572	2	6,200	340	680	\$1,665
3	6,300	5,500	16,500	\$45,144	3	6,300	549	1,647	\$4,032
4	6,400	3,132	12,528	\$34,277	4	6,400	317	1,268	\$3,104
5	6,500	3,526	17,630	\$48,236	5	6,500	365	1,825	\$4,468
6	6,600	3,320	19,920	\$54,501	6	6,600	367	2,202	\$5,390
7	6,700	2,333	16,331	\$44,682	7	6,700	261	1,827	\$4,472
8	6,800	3,504	28,032	\$76,696	8	6,800	384	3,072	\$7,520
9	6,900	2,211	19,899	\$54,444	9	6,900	252	2,268	\$5,552
10	7,000	2,199	21,990	\$60,165	10	7,000	236	2,360	\$5,777
11	7,100	1,765	19,415	\$53,119	11	7,100	219	2,409	\$5,897
12	7,200	2,512	30,144	\$82,474	12	7,200	343	4,116	\$10,076
13	7,300	1,741	22,633	\$61,924	13	7,300	193	2,509	\$6,142
14	7,400	1,841	25,774	\$70,518	14	7,400	212	2,968	\$7,266
15	7,500	3,677	55,155	\$150,904	15	7,500	469	7,035	\$17,222
16	7,600	1,628	26,048	\$71,267	16	7,600	213	3,408	\$8,343
17	7,700	1,607	27,319	\$74,745	17	7,700	207	3,519	\$8,615
18	7,800	1,608	28,944	\$79,191	18	7,800	200	3,600	\$8,813
19	7,900	1,414	26,866	\$73,505	19	7,900	177	3,363	\$8,233
20	8,000	1,519	30,380	\$83,120	20	8,000	176	3,520	\$8,617
21	8,100	2,958	62,118	\$169,955	21	8,100	429	9,009	\$22,054
22	8,200	1,139	25,058	\$68,559	22	8,200	147	3,234	\$7,917
23	8,300	803	18,469	\$50,531	23	8,300	106	2,438	\$5,968
24	8,400	885	21,240	\$58,113	24	8,400	114	2,736	\$6,698
25	8,500	964	24,100	\$65,938	25	8,500	106	2,650	\$6,487
26	8,600	835	21,710	\$59,399	26	8,600	112	2,912	\$7,129
27	8,700	667	18,009	\$49,273	27	8,700	79	2,133	\$5,222
28	8,800	990	27,720	\$75,842	28	8,800	139	3,892	\$9,528
29	8,900	640	18,560	\$50,780	29	8,900	74	2,146	\$5,253
30	9,000	1,274	38,220	\$104,570	30	9,000	170	5,100	\$12,485
31	9,100	721	22,351	\$61,152	31	9,100	100	3,100	\$7,589
32	9,200	784	25,088	\$68,641	32	9,200	105	3,360	\$8,225
33	9,300	510	16,830	\$46,047	33	9,300	72	2,376	\$5,816
34	9,400	754	25,636	\$70,140	34	9,400	103	3,502	\$8,573
35	9,500	743	26,005	\$71,150	35	9,500	97	3,395	\$8,311
36	9,600	602	21,672	\$59,295	36	9,600	85	3,060	\$7,491
37	9,700	551	20,387	\$55,779	37	9,700	75	2,775	\$6,793
38	9,800	773	29,374	\$80,367	38	9,800	136	5,168	\$12,651
39	9,900	662	25,818	\$70,638	39	9,900	107	4,173	\$10,216
40	10,000	695	27,800	\$76,061	40	10,000	100	4,000	\$9,792
41	10,100	602	24,682	\$67,530	41	10,100	104	4,264	\$10,438
42	10,200	606	25,452	\$69,637	42	10,200	67	2,814	\$6,889
43	10,300	356	15,308	\$41,883	43	10,300	55	2,365	\$5,790
44	10,400	512	22,528	\$61,637	44	10,400	79	3,476	\$8,509
45	10,500	419	18,855	\$51,587	45	10,500	60	2,700	\$6,610
46	10,600	388	17,848	\$48,832	46	10,600	57	2,622	\$6,419
47	10,700	289	13,583	\$37,163	47	10,700	42	1,974	\$4,832
48	10,800	381	18,288	\$50,036	48	10,800	56	2,688	\$6,580
49	10,900	340	16,660	\$45,582	49	10,900	33	1,617	\$3,958
50	11,000	274	13,700	\$37,483	50	11,000	39	1,950	\$4,774
51	11,100	296	15,096	\$41,303	51	11,100	40	2,040	\$4,994
52	11,200	273	14,196	\$38,840	52	11,200	38	1,976	\$4,837
53	11,300	346	18,338	\$50,173	53	11,300	53	2,809	\$6,876
54	11,400	209	11,286	\$30,878	54	11,400	32	1,728	\$4,230
55	11,500	230	12,650	\$34,610	55	11,500	37	2,035	\$4,982
56	11,600	222	12,432	\$34,014	56	11,600	25	1,400	\$3,427
57	11,700	195	11,115	\$30,411	57	11,700	30	1,710	\$4,186
58	11,800	211	12,238	\$33,483	58	11,800	31	1,798	\$4,402
59	11,900	228	13,452	\$36,805	59	11,900	30	1,770	\$4,333
60	12,000	357	21,420	\$58,605	60	12,000	64	3,840	\$9,400
61	12,100	223	13,603	\$37,218	61	12,100	31	1,891	\$4,629
62	12,200	231	14,322	\$39,185	62	12,200	30	1,860	\$4,553
63	12,300	183	11,529	\$31,543	63	12,300	17	1,071	\$2,622
64	12,400	172	11,008	\$30,118	64	12,400	27	1,728	\$4,230
65	12,500	463	30,095	\$82,340	65	12,500	76	4,940	\$12,093
66	12,600	448	29,568	\$80,898	66	12,600	82	5,412	\$13,249
67	12,700	362	24,254	\$66,359	67	12,700	49	3,283	\$8,037
68	12,800	278	18,904	\$51,721	68	12,800	41	2,788	\$6,825
69	12,900	209	14,421	\$39,456	69	12,900	43	2,967	\$7,263
70	13,000	368	25,760	\$70,479	70	13,000	65	4,550	\$11,138
71	13,100	282	20,022	\$54,780	71	13,100	42	2,982	\$7,300
72	13,200	262	18,864	\$51,612	72	13,200	53	3,816	\$9,342
73	13,300	255	18,615	\$50,931	73	13,300	43	3,139	\$7,684
74	13,400	232	17,168	\$46,972	74	13,400	43	3,182	\$7,790
75	13,500	342	25,650	\$70,178	75	13,500	72	5,400	\$13,219
76	13,600	220	16,720	\$45,746	76	13,600	44	3,344	\$8,186

Table A-3  
FY11 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
77	13,700	179	13,783	\$37,710	77	13,700	21	1,617	\$3,958
78	13,800	245	19,110	\$52,285	78	13,800	43	3,354	\$8,211
79	13,900	166	13,114	\$35,880	79	13,900	25	1,975	\$4,835
80	14,000	266	21,280	\$58,222	80	14,000	43	3,440	\$8,421
81	14,100	131	10,611	\$29,032	81	14,100	23	1,863	\$4,561
82	14,200	230	18,860	\$51,601	82	14,200	35	2,870	\$7,026
83	14,300	247	20,501	\$56,091	83	14,300	38	3,154	\$7,721
84	14,400	199	16,716	\$45,735	84	14,400	34	2,856	\$6,991
85	14,500	156	13,260	\$36,279	85	14,500	34	2,890	\$7,075
86	14,600	202	17,372	\$47,530	86	14,600	41	3,526	\$8,632
87	14,700	172	14,964	\$40,942	87	14,700	30	2,610	\$6,389
88	14,800	217	19,096	\$52,247	88	14,800	36	3,168	\$7,755
89	14,900	139	12,371	\$33,847	89	14,900	19	1,691	\$4,140
90	15,000	266	23,940	\$65,500	90	15,000	52	4,680	\$11,457
91	15,100	174	15,834	\$43,322	91	15,100	34	3,094	\$7,574
92	15,200	155	14,260	\$39,015	92	15,200	18	1,656	\$4,054
93	15,300	130	12,090	\$33,078	93	15,300	16	1,488	\$3,643
94	15,400	142	13,348	\$36,520	94	15,400	28	2,632	\$6,443
95	15,500	163	15,485	\$42,367	95	15,500	20	1,900	\$4,651
96	15,600	131	12,576	\$34,408	96	15,600	26	2,496	\$6,110
97	15,700	112	10,864	\$29,724	97	15,700	25	2,425	\$5,936
98	15,800	142	13,916	\$38,074	98	15,800	32	3,136	\$7,677
99	15,900	99	9,801	\$26,816	99	15,900	23	2,277	\$5,574
100	16,000	190	19,000	\$51,984	100	16,000	48	4,800	\$11,750
101	16,100	155	15,655	\$42,832	101	16,100	22	2,222	\$5,439
102	16,200	233	23,766	\$65,024	102	16,200	41	4,182	\$10,238
103	16,300	144	14,832	\$40,580	103	16,300	38	3,914	\$9,581
104	16,400	139	14,456	\$39,552	104	16,400	26	2,704	\$6,619
105	16,500	80	8,400	\$22,982	105	16,500	17	1,785	\$4,370
106	16,600	85	9,010	\$24,651	106	16,600	13	1,378	\$3,373
107	16,700	69	7,383	\$20,200	107	16,700	12	1,284	\$3,143
108	16,800	91	9,828	\$26,889	108	16,800	20	2,160	\$5,288
109	16,900	97	10,573	\$28,928	109	16,900	24	2,616	\$6,404
110	17,000	77	8,470	\$23,174	110	17,000	14	1,540	\$3,770
111	17,100	60	6,660	\$18,222	111	17,100	6	666	\$1,630
112	17,200	66	7,392	\$20,225	112	17,200	12	1,344	\$3,290
113	17,300	74	8,362	\$22,878	113	17,300	15	1,695	\$4,149
114	17,400	61	6,954	\$19,026	114	17,400	8	912	\$2,233
115	17,500	85	9,775	\$26,744	115	17,500	13	1,495	\$3,660
116	17,600	97	11,252	\$30,785	116	17,600	19	2,204	\$5,395
117	17,700	51	5,967	\$16,326	117	17,700	7	819	\$2,005
118	17,800	98	11,564	\$31,639	118	17,800	18	2,124	\$5,200
119	17,900	48	5,712	\$15,628	119	17,900	11	1,309	\$3,204
120	18,000	105	12,600	\$34,474	120	18,000	20	2,400	\$5,875
121	18,100	20	2,420	\$6,621	121	18,100	1	121	\$296
122	18,200	65	7,930	\$21,696	122	18,200	10	1,220	\$2,987
123	18,300	43	5,289	\$14,471	123	18,300	7	861	\$2,108
124	18,400	21	2,604	\$7,125	124	18,400	2	248	\$607
125	18,500	52	6,500	\$17,784	125	18,500	12	1,500	\$3,672
126	18,600	28	3,528	\$9,653	126	18,600	6	756	\$1,851
127	18,700	27	3,429	\$9,382	127	18,700	1	127	\$311
128	18,800	40	5,120	\$14,008	128	18,800	9	1,152	\$2,820
129	18,900	41	5,289	\$14,471	129	18,900	5	645	\$1,579
130	19,000	40	5,200	\$14,227	130	19,000	3	390	\$955
131	19,100	41	5,371	\$14,695	131	19,100	7	917	\$2,245
132	19,200	44	5,808	\$15,891	132	19,200	6	792	\$1,939
133	19,300	26	3,458	\$9,461	133	19,300	4	532	\$1,302
134	19,400	28	3,752	\$10,265	134	19,400	9	1,206	\$2,952
135	19,500	50	6,750	\$18,468	135	19,500	7	945	\$2,313
136	19,600	26	3,536	\$9,674	136	19,600	3	408	\$999
137	19,700	19	2,603	\$7,122	137	19,700	4	548	\$1,342
138	19,800	24	3,312	\$9,062	138	19,800	3	414	\$1,013
139	19,900	27	3,753	\$10,268	139	19,900	4	556	\$1,361
140	20,000	103	14,420	\$39,453	140	20,000	10	1,400	\$3,427
141	20,100	52	7,332	\$20,060	141	20,100	8	1,128	\$2,761
142	20,200	41	5,822	\$15,929	142	20,200	6	852	\$2,086
143	20,300	46	6,578	\$17,997	143	20,300	5	715	\$1,750
144	20,400	34	4,896	\$13,395	144	20,400	9	1,296	\$3,173
145	20,500	18	2,610	\$7,141	145	20,500	5	725	\$1,775
146	20,600	22	3,212	\$8,788	146	20,600	3	438	\$1,072
147	20,700	18	2,646	\$7,239	147	20,700	4	588	\$1,439
148	20,800	28	4,144	\$11,338	148	20,800	9	1,332	\$3,261
149	20,900	29	4,321	\$11,822	149	20,900	1	149	\$365
150	21,000	40	6,000	\$16,416	150	21,000	10	1,500	\$3,672
151	21,100	17	2,567	\$7,023	151	21,100	2	302	\$739
152	21,200	16	2,432	\$6,654	152	21,200	1	152	\$372

Table A-3  
FY11 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
153	21,300	20	3,060	\$8,372	153	21,300	4	612	\$1,498
154	21,400	36	5,544	\$15,168	154	21,400	10	1,540	\$3,770
155	21,500	29	4,495	\$12,298	155	21,500	2	310	\$759
156	21,600	29	4,524	\$12,378	156	21,600	5	780	\$1,909
157	21,700	31	4,867	\$13,316	157	21,700	8	1,256	\$3,075
158	21,800	22	3,476	\$9,510	158	21,800	6	948	\$2,321
159	21,900	7	1,113	\$3,045	160	22,000	4	640	\$1,567
160	22,000	25	4,000	\$10,944	161	22,100	3	483	\$1,182
161	22,100	14	2,254	\$6,167	162	22,200	3	486	\$1,190
162	22,200	9	1,458	\$3,989	163	22,300	2	326	\$798
163	22,300	14	2,282	\$6,244	164	22,400	4	656	\$1,606
164	22,400	24	3,936	\$10,769	165	22,500	4	660	\$1,616
165	22,500	28	4,620	\$12,640	166	22,600	3	498	\$1,219
166	22,600	12	1,992	\$5,450	167	22,700	2	334	\$818
167	22,700	13	2,171	\$5,940	168	22,800	1	168	\$411
168	22,800	6	1,008	\$2,758	169	22,900	2	338	\$827
169	22,900	14	2,366	\$6,473	170	23,000	2	340	\$832
170	23,000	23	3,910	\$10,698	171	23,100	2	342	\$837
171	23,100	17	2,907	\$7,954	172	23,200	2	344	\$842
172	23,200	7	1,204	\$3,294	173	23,300	3	519	\$1,271
173	23,300	10	1,730	\$4,733	174	23,400	1	174	\$426
174	23,400	5	870	\$2,380	175	23,500	5	875	\$2,142
175	23,500	14	2,450	\$6,703	176	23,600	3	528	\$1,293
176	23,600	8	1,408	\$3,852	177	23,700	1	177	\$433
177	23,700	7	1,239	\$3,390	178	23,800	2	356	\$871
178	23,800	11	1,958	\$5,357	180	24,000	11	1,980	\$4,847
179	23,900	4	716	\$1,959	181	24,100	1	181	\$443
180	24,000	34	6,120	\$16,744	182	24,200	1	182	\$446
181	24,100	13	2,353	\$6,438	183	24,300	1	183	\$448
182	24,200	9	1,638	\$4,482	184	24,400	1	184	\$450
183	24,300	10	1,830	\$5,007	185	24,500	2	370	\$906
184	24,400	11	2,024	\$5,538	187	24,700	1	187	\$458
185	24,500	15	2,775	\$7,592	189	24,900	4	756	\$1,851
186	24,600	4	744	\$2,036	190	25,000	2	380	\$930
187	24,700	6	1,122	\$3,070	191	25,100	2	382	\$935
188	24,800	6	1,128	\$3,086	192	25,200	1	192	\$470
189	24,900	6	1,134	\$3,103	193	25,300	2	386	\$945
190	25,000	10	1,900	\$5,198	194	25,400	3	582	\$1,425
191	25,100	5	955	\$2,613	195	25,500	7	1,365	\$3,342
192	25,200	6	1,152	\$3,152	196	25,600	2	392	\$960
193	25,300	6	1,158	\$3,168	197	25,700	8	1,576	\$3,858
194	25,400	14	2,716	\$7,431	198	25,800	3	594	\$1,454
195	25,500	37	7,215	\$19,740	199	25,900	2	398	\$974
196	25,600	14	2,744	\$7,508	200	26,000	3	600	\$1,469
197	25,700	27	5,319	\$14,553	201	26,100	1	201	\$492
198	25,800	10	1,980	\$5,417	202	26,200	2	404	\$989
199	25,900	10	1,990	\$5,445	203	26,300	2	406	\$994
200	26,000	11	2,200	\$6,019	204	26,400	2	408	\$999
201	26,100	6	1,206	\$3,300	205	26,500	1	205	\$502
202	26,200	12	2,424	\$6,632	206	26,600	3	618	\$1,513
203	26,300	15	3,045	\$8,331	207	26,700	1	207	\$507
204	26,400	5	1,020	\$2,791	208	26,800	4	832	\$2,037
205	26,500	6	1,230	\$3,365	209	26,900	1	209	\$512
206	26,600	16	3,296	\$9,018	210	27,000	4	840	\$2,056
207	26,700	5	1,035	\$2,832	212	27,200	5	1,060	\$2,595
208	26,800	7	1,456	\$3,984	213	27,300	1	213	\$521
209	26,900	10	2,090	\$5,718	214	27,400	3	642	\$1,572
210	27,000	16	3,360	\$9,193	215	27,500	1	215	\$526
211	27,100	1	211	\$577	216	27,600	1	216	\$529
212	27,200	19	4,028	\$11,021	217	27,700	1	217	\$531
213	27,300	5	1,065	\$2,914	218	27,800	1	218	\$534
214	27,400	7	1,498	\$4,099	219	27,900	1	219	\$536
215	27,500	6	1,290	\$3,529	220	28,000	4	880	\$2,154
216	27,600	5	1,080	\$2,955	221	28,100	1	221	\$541
217	27,700	2	434	\$1,187	223	28,300	2	446	\$1,092
218	27,800	4	872	\$2,386	224	28,400	1	224	\$548
219	27,900	3	657	\$1,798	225	28,500	1	225	\$551
220	28,000	21	4,620	\$12,640	226	28,600	1	226	\$553
221	28,100	4	884	\$2,419	228	28,800	2	456	\$1,116
222	28,200	3	666	\$1,822	229	28,900	1	229	\$561
223	28,300	7	1,561	\$4,271	230	29,000	2	460	\$1,126
224	28,400	4	896	\$2,451	231	29,100	1	231	\$565
225	28,500	12	2,700	\$7,387	232	29,200	1	232	\$568
226	28,600	3	678	\$1,855	233	29,300	1	233	\$570
227	28,700	3	681	\$1,863	235	29,500	2	470	\$1,151
228	28,800	7	1,596	\$4,367	236	29,600	1	236	\$578



Table A-3  
FY11 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
229	28,900	7	1,603	\$4,386	239	29,900	2	478	\$1,170
230	29,000	8	1,840	\$5,034	240	30,000	20	4,800	\$11,750
231	29,100	5	1,155	\$3,160	242	30,200	2	484	\$1,185
232	29,200	6	1,392	\$3,809	243	30,300	1	243	\$595
233	29,300	9	2,097	\$5,737	245	30,500	1	245	\$600
234	29,400	8	1,872	\$5,122	246	30,600	1	246	\$602
235	29,500	5	1,175	\$3,215	251	31,100	2	502	\$1,229
236	29,600	4	944	\$2,583	256	31,600	2	512	\$1,253
237	29,700	6	1,422	\$3,891	258	31,800	3	774	\$1,895
238	29,800	5	1,190	\$3,256	260	32,000	2	520	\$1,273
239	29,900	6	1,434	\$3,923	261	32,100	2	522	\$1,278
240	30,000	63	15,120	\$41,368	262	32,200	2	524	\$1,283
241	30,100	2	482	\$1,319	264	32,400	1	264	\$646
242	30,200	10	2,420	\$6,621	266	32,600	1	266	\$651
243	30,300	2	486	\$1,330	269	32,900	2	538	\$1,317
244	30,400	2	488	\$1,335	270	33,000	1	270	\$661
245	30,500	14	3,430	\$9,384	274	33,400	1	274	\$671
246	30,600	5	1,230	\$3,365	277	33,700	2	554	\$1,356
247	30,700	3	741	\$2,027	280	34,000	2	560	\$1,371
248	30,800	3	744	\$2,036	281	34,100	2	562	\$1,376
249	30,900	1	249	\$681	282	34,200	2	564	\$1,381
250	31,000	3	750	\$2,052	284	34,400	3	852	\$2,086
251	31,100	5	1,255	\$3,434	285	34,500	1	285	\$698
252	31,200	2	504	\$1,379	287	34,700	4	1,148	\$2,810
253	31,300	8	2,024	\$5,538	289	34,900	1	289	\$707
254	31,400	3	762	\$2,085	290	35,000	1	290	\$710
255	31,500	2	510	\$1,395	293	35,300	2	586	\$1,435
256	31,600	7	1,792	\$4,903	295	35,500	3	885	\$2,166
257	31,700	3	771	\$2,109	296	35,600	2	592	\$1,449
258	31,800	8	2,064	\$5,647	297	35,700	2	594	\$1,454
259	31,900	4	1,036	\$2,834	298	35,800	2	596	\$1,459
260	32,000	16	4,160	\$11,382	299	35,900	3	897	\$2,196
261	32,100	3	783	\$2,142	300	36,000	6	1,800	\$4,406
262	32,200	6	1,572	\$4,301	301	36,100	1	301	\$737
263	32,300	5	1,315	\$3,598	303	36,300	2	606	\$1,483
264	32,400	5	1,320	\$3,612	307	36,700	1	307	\$752
265	32,500	2	530	\$1,450	308	36,800	4	1,232	\$3,016
266	32,600	2	532	\$1,456	311	37,100	3	933	\$2,284
267	32,700	1	267	\$731	314	37,400	1	314	\$769
269	32,900	5	1,345	\$3,680	315	37,500	1	315	\$771
270	33,000	5	1,350	\$3,694	316	37,600	3	948	\$2,321
271	33,100	5	1,355	\$3,707	317	37,700	1	317	\$776
272	33,200	1	272	\$744	318	37,800	2	636	\$1,557
274	33,400	1	274	\$750	319	37,900	2	638	\$1,562
275	33,500	3	825	\$2,257	320	38,000	2	640	\$1,567
276	33,600	4	1,104	\$3,021	321	38,100	1	321	\$786
277	33,700	7	1,939	\$5,305	324	38,400	1	324	\$793
278	33,800	5	1,390	\$3,803	325	38,500	1	325	\$796
279	33,900	1	279	\$763	326	38,600	3	978	\$2,394
280	34,000	5	1,400	\$3,830	327	38,700	1	327	\$800
281	34,100	13	3,653	\$9,995	329	38,900	2	658	\$1,611
282	34,200	15	4,230	\$11,573	337	39,700	1	337	\$825
283	34,300	2	566	\$1,549	338	39,800	1	338	\$827
284	34,400	4	1,136	\$3,108	339	39,900	2	678	\$1,660
285	34,500	1	285	\$780	340	40,000	1	340	\$832
286	34,600	1	286	\$782	341	40,100	1	341	\$835
287	34,700	5	1,435	\$3,926	350	41,000	1	350	\$857
288	34,800	1	288	\$788	352	41,200	1	352	\$862
289	34,900	3	867	\$2,372	353	41,300	1	353	\$864
290	35,000	10	2,900	\$7,934	354	41,400	1	354	\$867
292	35,200	6	1,752	\$4,793	358	41,800	1	358	\$876
293	35,300	4	1,172	\$3,207	362	42,200	1	362	\$886
294	35,400	5	1,470	\$4,022	365	42,500	1	365	\$894
295	35,500	10	2,950	\$8,071	372	43,200	2	744	\$1,821
296	35,600	16	4,736	\$12,958	375	43,500	1	375	\$918
297	35,700	11	3,267	\$8,939	380	44,000	1	380	\$930
298	35,800	4	1,192	\$3,261	385	44,500	1	385	\$942
299	35,900	8	2,392	\$6,545	387	44,700	1	387	\$947
300	36,000	34	10,200	\$27,907	389	44,900	2	778	\$1,905
301	36,100	5	1,505	\$4,118	396	45,600	1	396	\$969
302	36,200	7	2,114	\$5,784	400	46,000	1	400	\$979
303	36,300	9	2,727	\$7,461	413	47,300	1	413	\$1,011
304	36,400	5	1,520	\$4,159	417	47,700	1	417	\$1,021
305	36,500	1	305	\$834	424	48,400	1	424	\$1,038
306	36,600	4	1,224	\$3,349	431	49,100	1	431	\$1,055
307	36,700	5	1,535	\$4,200	440	50,000	1	440	\$1,077

Table A-3

FY11 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
308	36,800	6	1,848	\$5,056	441	50,100	1	441	\$1,080
309	36,900	2	618	\$1,691	442	50,200	1	442	\$1,082
310	37,000	3	930	\$2,544	445	50,500	2	890	\$2,179
311	37,100	5	1,555	\$4,254	449	50,900	2	898	\$2,198
312	37,200	2	624	\$1,707	451	51,100	2	902	\$2,208
313	37,300	1	313	\$856	452	51,200	1	452	\$1,106
314	37,400	3	942	\$2,577	463	52,300	1	463	\$1,133
315	37,500	23	7,245	\$19,822	464	52,400	1	464	\$1,136
316	37,600	18	5,688	\$15,562	489	54,900	1	489	\$1,197
317	37,700	6	1,902	\$5,204	537	59,700	1	537	\$1,315
318	37,800	7	2,226	\$6,090	580	64,000	1	580	\$1,420
319	37,900	5	1,595	\$4,364	618	67,800	1	618	\$1,513
320	38,000	6	1,920	\$5,253	641	70,100	1	641	\$1,569
321	38,100	2	642	\$1,757	657	71,700	1	657	\$1,608
322	38,200	7	2,254	\$6,167	658	71,800	1	658	\$1,611
323	38,300	5	1,615	\$4,419	680	74,000	1	680	\$1,665
324	38,400	4	1,296	\$3,546	716	77,600	1	716	\$1,753
325	38,500	9	2,925	\$8,003	755	81,500	1	755	\$1,848
326	38,600	5	1,630	\$4,460					
327	38,700	3	981	\$2,684					
328	38,800	7	2,296	\$6,282					
329	38,900	5	1,645	\$4,501					
330	39,000	5	1,650	\$4,514					
331	39,100	1	331	\$906					
332	39,200	4	1,328	\$3,633					
333	39,300	3	999	\$2,733					
334	39,400	2	668	\$1,828					
335	39,500	4	1,340	\$3,666					
336	39,600	4	1,344	\$3,677					
337	39,700	2	674	\$1,844					
338	39,800	2	676	\$1,850					
339	39,900	3	1,017	\$2,783					
340	40,000	8	2,720	\$7,442					
341	40,100	4	1,364	\$3,732					
342	40,200	1	342	\$936					
343	40,300	1	343	\$938					
344	40,400	1	344	\$941					
345	40,500	2	690	\$1,888					
346	40,600	2	692	\$1,893					
347	40,700	2	694	\$1,899					
348	40,800	2	696	\$1,904					
349	40,900	2	698	\$1,910					
350	41,000	1	350	\$958					
351	41,100	1	351	\$960					
352	41,200	3	1,056	\$2,889					
353	41,300	1	353	\$966					
354	41,400	1	354	\$969					
356	41,600	3	1,068	\$2,922					
358	41,800	3	1,074	\$2,938					
359	41,900	4	1,436	\$3,929					
360	42,000	3	1,080	\$2,955					
362	42,200	2	724	\$1,981					
364	42,400	1	364	\$996					
365	42,500	4	1,460	\$3,995					
369	42,900	2	738	\$2,019					
372	43,200	4	1,488	\$4,071					
374	43,400	3	1,122	\$3,070					
375	43,500	2	750	\$2,052					
376	43,600	5	1,880	\$5,144					
377	43,700	4	1,508	\$4,126					
378	43,800	1	378	\$1,034					
379	43,900	3	1,137	\$3,111					
380	44,000	4	1,520	\$4,159					
382	44,200	2	764	\$2,090					
383	44,300	3	1,149	\$3,144					
385	44,500	1	385	\$1,053					
387	44,700	3	1,161	\$3,176					
388	44,800	1	388	\$1,062					
389	44,900	3	1,167	\$3,193					
390	45,000	5	1,950	\$5,335					
391	45,100	1	391	\$1,070					
392	45,200	1	392	\$1,073					
393	45,300	3	1,179	\$3,226					
396	45,600	3	1,188	\$3,250					
397	45,700	2	794	\$2,172					
400	46,000	2	800	\$2,189					

Table A-3  
FY11 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
402	46,200	2	804	\$2,200					
403	46,300	2	806	\$2,205					
405	46,500	3	1,215	\$3,324					
406	46,600	2	812	\$2,222					
408	46,800	2	816	\$2,233					
410	47,000	2	820	\$2,244					
412	47,200	1	412	\$1,127					
413	47,300	2	826	\$2,260					
417	47,700	2	834	\$2,282					
419	47,900	3	1,257	\$3,439					
420	48,000	4	1,680	\$4,596					
423	48,300	1	423	\$1,157					
424	48,400	3	1,272	\$3,480					
425	48,500	1	425	\$1,163					
428	48,800	2	856	\$2,342					
430	49,000	1	430	\$1,176					
431	49,100	2	862	\$2,358					
435	49,500	1	435	\$1,190					
436	49,600	1	436	\$1,193					
440	50,000	1	440	\$1,204					
441	50,100	2	882	\$2,413					
442	50,200	2	884	\$2,419					
443	50,300	1	443	\$1,212					
445	50,500	3	1,335	\$3,653					
449	50,900	2	898	\$2,457					
450	51,000	2	900	\$2,462					
451	51,100	3	1,353	\$3,702					
452	51,200	3	1,356	\$3,710					
454	51,400	1	454	\$1,242					
456	51,600	1	456	\$1,248					
457	51,700	1	457	\$1,250					
463	52,300	1	463	\$1,267					
464	52,400	2	928	\$2,539					
465	52,500	1	465	\$1,272					
467	52,700	2	934	\$2,555					
469	52,900	1	469	\$1,283					
470	53,000	2	940	\$2,572					
471	53,100	2	942	\$2,577					
475	53,500	1	475	\$1,300					
478	53,800	1	478	\$1,308					
480	54,000	4	1,920	\$5,253					
482	54,200	1	482	\$1,319					
483	54,300	1	483	\$1,321					
484	54,400	3	1,452	\$3,973					
489	54,900	3	1,467	\$4,014					
490	55,000	1	490	\$1,341					
498	55,800	2	996	\$2,725					
502	56,200	2	1,004	\$2,747					
503	56,300	1	503	\$1,376					
506	56,600	1	506	\$1,384					
511	57,100	1	511	\$1,398					
512	57,200	1	512	\$1,401					
514	57,400	1	514	\$1,406					
523	58,300	1	523	\$1,431					
537	59,700	3	1,611	\$4,408					
538	59,800	1	538	\$1,472					
545	60,500	1	545	\$1,491					
550	61,000	1	550	\$1,505					
558	61,800	1	558	\$1,527					
559	61,900	1	559	\$1,529					
562	62,200	1	562	\$1,538					
564	62,400	1	564	\$1,543					
567	62,700	1	567	\$1,551					
571	63,100	1	571	\$1,562					
575	63,500	1	575	\$1,573					
580	64,000	1	580	\$1,587					
581	64,100	1	581	\$1,590					
584	64,400	1	584	\$1,598					
590	65,000	1	590	\$1,614					
599	65,900	1	599	\$1,639					
606	66,600	1	606	\$1,658					
618	67,800	1	618	\$1,691					
619	67,900	1	619	\$1,694					
624	68,400	1	624	\$1,707					
630	69,000	1	630	\$1,724					
641	70,100	3	1,923	\$5,261					

Table A-3  
FY11 Units of Additional Square Feet for Residential Non-Metered Users

Single Family Accounts					Senior Citizen Accounts				
Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF	Quantity for Sq Ft Units	Total Sq Ft of Lots	# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.204 / Addl 100 SF
657	71,700	1	657	\$1,798					
658	71,800	1	658	\$1,800					
660	72,000	1	660	\$1,806					
680	74,000	2	1,360	\$3,721					
685	74,500	1	685	\$1,874					
687	74,700	1	687	\$1,880					
694	75,400	1	694	\$1,899					
709	76,900	1	709	\$1,940					
716	77,600	1	716	\$1,959					
726	78,600	1	726	\$1,986					
741	80,100	1	741	\$2,027					
745	80,500	1	745	\$2,038					
750	81,000	1	750	\$2,052					
755	81,500	1	755	\$2,066					
757	81,700	1	757	\$2,071					
789	84,900	2	1,578	\$4,317					
791	85,100	1	791	\$2,164					
794	85,400	1	794	\$2,172					
802	86,200	2	1,604	\$4,389					
821	88,100	1	821	\$2,246					
930	99,000	2	1,860	\$5,089					
933	99,300	1	933	\$2,553					
950	101,000	1	950	\$2,599					
968	102,800	1	968	\$2,648					
1029	108,900	1	1,029	\$2,815					
1042	110,200	1	1,042	\$2,851					
1225	128,500	1	1,225	\$3,352					
1317	137,700	1	1,317	\$3,603					
Totals		90,032	2,820,081	\$7,715,742			11,635	444,357	\$1,087,786
Summary									
Customer Class		# Accounts billed for Sq Ft	Addl 100 SF Units	Revenue at \$0.228 / Addl 100 SF					
Single Family		90,032	2,820,081	\$7,715,742					
Senior Citizen		11,635	444,357	\$1,087,786					
Total		101,667	3,264,438	\$8,803,528					

Source: SFR Flat Rate--Accts billed additional sqft 07\_11.xlsx provided by the City on July 22, 2011.

Table A-4  
Residential Customer Class Characteristics

Item	Actual	Actual	Projected									
	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Water Use												
Metered Accounts <sup>1,2</sup>												
Number of Meters	0	0	71,059	107,113	111,644	112,355	113,077	113,811	114,556	115,312	116,079	116,858
Avg Use/Mtr, HCF/mo	22	22	18	18	18	18	18	18	18	18	18	18
Water Use, HCF	0	0	15,348,744	23,136,408	24,115,104	24,268,680	24,424,632	24,583,176	24,744,096	24,907,392	25,073,064	25,241,328
Unmetered Accounts <sup>1,2</sup>												
Number of Accounts	110,724	110,121	39,471	3,832	0	0	0	0	0	0	0	0
Avg Use/Acct, HCF/mo	26	26	26	26	26	26	26	26	26	26	26	26
Water Use, HCF	34,545,888	34,357,752	12,314,952	1,195,584	0	0	0	0	0	0	0	0
Total Water Use, HCF												
Annual Total	34,545,888	34,357,752	27,663,696	24,331,992	24,115,104	24,268,680	24,424,632	24,583,176	24,744,096	24,907,392	25,073,064	25,241,328
Annual # Change		-188,136	-6,694,056	-3,331,704	-216,888	153,576	155,952	158,544	160,920	163,296	165,672	168,264
Annual % Change		-1%	-19%	-12%	-1%	1%	1%	1%	1%	1%	1%	1%
Accounts and Meters												
Metered <sup>3</sup>												
3/4-inch or smaller	0	0	5,339	8,048	8,388	8,442	8,496	8,551	8,607	8,664	8,721	8,780
1	0	0	62,923	94,849	98,861	99,491	100,130	100,780	101,440	102,109	102,788	103,478
1-1/2-inch	0	0	2,714	4,091	4,264	4,292	4,319	4,347	4,376	4,404	4,434	4,463
2	0	0	83	125	130	131	132	133	134	135	136	136
Total	0	0	71,059	107,113	111,644	112,355	113,077	113,811	114,556	115,312	116,079	116,858
Unmetered Accounts <sup>1</sup>												
Senior Citizen	13,175	13,505	4,799	449	0	0	0	0	0	0	0	0
All Other	97,549	96,616	34,672	3,383	0	0	0	0	0	0	0	0
Total	110,724	110,121	39,471	3,832	0	0	0	0	0	0	0	0
Additional 100 Square Feet <sup>1</sup>												
Senior Citizen	438,982	444,357	158,485	14,825	0	0	0	0	0	0	0	0
All Other	2,804,713	2,820,081	1,006,417	94,923	0	0	0	0	0	0	0	0
Total	3,243,695	3,264,438	1,164,902	109,747	0	0	0	0	0	0	0	0

Notes:

- 1 The number of metered and unmetered accounts and additional 100 square feet are from Table A-1.
  - 2 Average use per meter and average use per unmetered account were estimated by the Consultant.
  - 3 The percent of meters by size is based on data in an Excel file provided by the City that was used to produce the HDR report titled "Development of Residential Metered Water Rates and Drought Surcharges" dated July 2009.
- The percent of meters by size is set constant for each year. Key data from the table is reproduced below:

Meter Size	%	Active	Non-active	Total
3/4"	7.5%	8,084	217	8,301
1"	88.6%	95,272	2,561	97,833
1-1/2"	3.8%	4,110	110	4,220
2"	0.1%	126	3	129
Total	100.0%	107,591	2,892	110,483

indoor	outdoor	
36%	65%	
9.23	16.77	26
0.90	0.58	0.6936
8.307	9.7266	18.0336

**Table A-5**  
**Domestic, Irrigation, Private Fire Service and Travel Meter Customer Class Meter Characteristics**

Item	Actual	Actual	Projected <sup>2</sup>									
	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Meters <sup>1</sup>												
Domestic												
3/4-inch or smaller	4,687	4,640	4,663	4,687	4,710	4,733	4,757	4,781	4,805	4,829	4,853	4,877
1-inch	3,808	3,821	3,840	3,859	3,879	3,898	3,917	3,937	3,957	3,977	3,996	4,016
1-1/2-inch	2,960	2,996	3,011	3,026	3,041	3,056	3,072	3,087	3,102	3,118	3,134	3,149
2-inch	3,210	3,310	3,327	3,343	3,360	3,377	3,394	3,411	3,428	3,445	3,462	3,479
3-inch	134	140	141	141	142	143	144	144	145	146	146	147
4-inch	608	647	650	653	657	660	663	667	670	673	677	680
6-inch	184	196	197	198	199	200	201	202	203	204	205	206
8-inch	178	182	183	184	185	186	187	188	188	189	190	191
10-inch	20	13	13	13	13	13	13	13	13	14	14	14
12-inch	0	0	0	0	0	0	0	0	0	0	0	0
Total	15,789	15,945	16,025	16,105	16,185	16,266	16,348	16,429	16,512	16,594	16,677	16,760
Irrigation												
3/4-inch or smaller	108	103	103	103	103	103	103	103	103	103	103	103
1-inch	866	919	924	928	933	938	942	947	952	956	961	966
1-1/2-inch	501	557	560	563	565	568	571	574	577	580	583	585
2-inch	1,310	1,428	1,435	1,442	1,450	1,457	1,464	1,471	1,479	1,486	1,494	1,501
3-inch	23	26	26	26	26	27	27	27	27	27	27	27
4-inch	85	94	94	95	95	96	96	97	97	98	98	99
6-inch	13	14	14	14	14	14	14	14	14	15	15	15
8-inch	4	5	5	5	5	5	5	5	5	5	5	5
10-inch	0	0	0	0	0	0	0	0	0	0	0	0
12-inch	0	0	0	0	0	0	0	0	0	0	0	0
Total	2,911	3,146	3,161	3,177	3,192	3,207	3,223	3,238	3,254	3,270	3,286	3,302
Private Fire Service												
Private Hydrant	681	681	681	681	681	681	681	681	681	681	681	681
1-inch	1	1	1	1	1	1	1	1	1	1	1	1
1-1/2-inch	0	0	0	0	0	0	0	0	0	0	0	0
2-inch	185	185	185	185	185	185	185	185	185	185	185	185
3-inch	2	2	2	2	2	2	2	2	2	2	2	2
4-inch	566	566	566	566	566	566	566	566	566	566	566	566
6-inch	951	951	951	951	951	951	951	951	951	951	951	951
8-inch	608	608	608	608	608	608	608	608	608	608	608	608
10-inch	73	73	73	73	73	73	73	73	73	73	73	73
12-inch	17	17	17	17	17	17	17	17	17	17	17	17
Total	3,084	3,084	3,084	3,084	3,084	3,084	3,084	3,084	3,084	3,084	3,084	3,084
Total Dom, Irr, Fire Svc												
3/4-inch or smaller	5,476	5,424	5,447	5,471	5,494	5,517	5,541	5,565	5,589	5,613	5,637	5,661

**Notes:**

1 Actual FY10 and FY11 data was provided by the City. The number of meters accounts shown accounts for non-active accounts.

2 Data for FY12 onward is based on the annual percent changes shown below:

[illegible]

Table A-6  
Domestic, Irrigation, Private Fire Service and Travel Meter Equivalent Meters

Item	Actual FY10	Actual FY11	Projected <sup>2</sup>									
			FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
<b>Equivalent Meters <sup>1</sup></b>												
Residential	<u>Rated Cap.</u>	<u>Eq. ¾" Mtrs</u>										
3/4-inch or smaller	30	1.00	8,305	8,336	8,388	8,442	8,496	8,551	8,607	8,664	8,721	8,780
1-inch	50	1.67	163,124	163,737	164,768	165,818	166,883	167,967	169,066	170,182	171,314	172,463
1-1/2-inch	100	3.33	14,073	14,125	14,214	14,305	14,397	14,490	14,585	14,681	14,779	14,878
2-inch	160	5.33	688	691	695	700	704	709	713	718	723	728
3-inch	320	10.67										
4-inch	500	16.67										
6-inch	1,000	33.33										
8-inch	1,600	53.33										
10-inch	2,300	76.67										
12-inch	4,300	143.33										
Total			186,190	186,889	188,066	189,264	190,480	191,717	192,972	194,245	195,537	196,849
Domestic	<u>Rated Cap.</u>	<u>Eq. ¾" Mtrs</u>										
3/4-inch or smaller	30	1.00	4,663	4,687	4,710	4,733	4,757	4,781	4,805	4,829	4,853	4,877
1-inch	50	1.67	6,400	6,432	6,464	6,497	6,529	6,562	6,595	6,628	6,661	6,694
1-1/2-inch	100	3.33	10,037	10,087	10,137	10,188	10,239	10,290	10,341	10,393	10,445	10,497
2-inch	160	5.33	17,742	17,830	17,919	18,009	18,099	18,190	18,281	18,372	18,464	18,556
3-inch	320	10.67	1,501	1,508	1,516	1,523	1,531	1,539	1,546	1,554	1,562	1,570
4-inch	500	16.67	10,837	10,891	10,946	11,001	11,056	11,111	11,166	11,222	11,278	11,335
6-inch	1,000	33.33	6,566	6,599	6,632	6,665	6,698	6,732	6,765	6,799	6,833	6,867
8-inch	1,600	53.33	9,755	9,804	9,853	9,902	9,952	10,002	10,052	10,102	10,152	10,203
10-inch	2,300	76.67	1,002	1,007	1,012	1,017	1,022	1,027	1,032	1,037	1,042	1,048
12-inch	4,300	143.33	0	0	0	0	0	0	0	0	0	0
Total			68,502	68,845	69,189	69,535	69,883	70,232	70,583	70,936	71,291	71,647
Irrigation	<u>Rated Cap.</u>	<u>Eq. ¾" Mtrs</u>										
3/4-inch or smaller	30	1.00	103	103	103	103	103	103	103	103	103	103
1-inch	50	1.67	1,539	1,547	1,555	1,563	1,570	1,578	1,586	1,594	1,602	1,610
1-1/2-inch	100	3.33	1,866	1,875	1,885	1,894	1,904	1,913	1,923	1,932	1,942	1,952
2-inch	160	5.33	7,654	7,692	7,731	7,769	7,808	7,847	7,887	7,926	7,966	8,005
3-inch	320	10.67	279	280	282	283	284	286	287	289	290	292
4-inch	500	16.67	1,575	1,582	1,590	1,598	1,606	1,614	1,622	1,630	1,639	1,647
6-inch	1,000	33.33	469	471	474	476	478	481	483	486	488	491
8-inch	1,600	53.33	268	269	271	272	273	275	276	278	279	280
10-inch	2,300	76.67	0	0	0	0	0	0	0	0	0	0
12-inch	4,300	143.33	0	0	0	0	0	0	0	0	0	0
Total			13,753	13,821	13,889	13,958	14,028	14,097	14,167	14,238	14,308	14,379
Private Fire Service	<u>Rated Cap.</u>	<u>Eq. ¾" Mtrs</u>										
Private Hydrant	500	16.67	11,350	11,350	11,350	11,350	11,350	11,350	11,350	11,350	11,350	11,350
1-inch	500	16.67	17	17	17	17	17	17	17	17	17	17
1-1/2-inch	500	16.67	0	0	0	0	0	0	0	0	0	0
2-inch	500	16.67	3,083	3,083	3,083	3,083	3,083	3,083	3,083	3,083	3,083	3,083
3-inch	500	16.67	33	33	33	33	33	33	33	33	33	33
4-inch	500	16.67	9,433	9,433	9,433	9,433	9,433	9,433	9,433	9,433	9,433	9,433
6-inch	1,000	33.33	31,700	31,700	31,700	31,700	31,700	31,700	31,700	31,700	31,700	31,700
8-inch	1,600	53.33	32,427	32,427	32,427	32,427	32,427	32,427	32,427	32,427	32,427	32,427
10-inch	2,300	76.67	5,597	5,597	5,597	5,597	5,597	5,597	5,597	5,597	5,597	5,597
12-inch	4,300	143.33	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437
Total			96,077	96,077	96,077	96,077	96,077	96,077	96,077	96,077	96,077	96,077
Total Res, Dom, Irr, Fire Svc												
3/4-inch or smaller			24,421	24,475	24,551	24,628	24,706	24,785	24,865	24,946	25,027	25,110
1-inch			171,081	171,733	172,804	173,894	174,999	176,123	177,263	178,420	179,593	180,784
1-1/2-inch			25,975	26,088	26,236	26,387	26,539	26,693	26,849	27,007	27,166	27,327
2-inch			29,167	29,297	29,429	29,562	29,695	29,829	29,964	30,099	30,236	30,373
3-inch			1,813	1,822	1,831	1,840	1,849	1,858	1,867	1,876	1,885	1,895
4-inch			21,845	21,907	21,970	22,032	22,095	22,158	22,222	22,286	22,350	22,415
6-inch			38,735	38,770	38,806	38,841	38,877	38,913	38,949	38,985	39,021	39,058
8-inch			42,450	42,500	42,550	42,601	42,652	42,703	42,754	42,806	42,858	42,910
10-inch			6,598	6,603	6,608	6,613	6,619	6,624	6,629	6,634	6,639	6,644
12-inch			2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437
Total	<u>Rated Cap.</u>	<u>Eq. ¾" Mtrs</u>	364,522	365,631	367,222	368,834	370,467	372,123	373,799	375,496	377,213	378,953
Travel Meters	320	10.67	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270
Total All			365,792	366,901	368,492	370,104	371,738	373,393	375,069	376,766	378,483	380,223

Notes:

- Maximum flow, in gallons per minute (gpm), is based on the maximum rate test requirement for each meter size. Meter types are Class I Turbine or Compound. Values are taken from the American Water Works Association Manual of Water Supply Practices, No. M6, 5th Edition (2012), pp. 64-65.
- The projected number of equivalent meters is the equivalency factor times the number of residential meters and accounts shown in Table A-4 and the number of nonresidential meters shown in Table A-5.

Table A-7  
Adjusted Domestic, Irrigation, Private Fire Service and Travel Meter Equivalent Meters

Item	Projected <sup>2</sup>									
	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
<b>Equivalent Meters<sup>1</sup></b>										
<b>Residential</b>										
3/4-inch or smaller	8,305	8,336	8,388	8,442	8,496	8,551	8,607	8,664	8,721	8,780
1-inch	163,124	163,737	164,768	165,818	166,883	167,967	169,066	170,182	171,314	172,463
1-1/2-inch	14,073	14,125	14,214	14,305	14,397	14,490	14,585	14,681	14,779	14,878
2-inch	688	691	695	700	704	709	713	718	723	728
3-inch										
4-inch										
6-inch										
8-inch										
10-inch										
12-inch										
Total	186,190	186,889	188,066	189,264	190,480	191,717	192,972	194,245	195,537	196,849
<b>Domestic</b>										
3/4-inch or smaller	7,772	7,811	7,850	7,889	7,929	7,968	8,008	8,048	8,088	8,129
1-inch	10,667	10,720	10,774	10,828	10,882	10,936	10,991	11,046	11,101	11,157
1-1/2-inch	16,728	16,811	16,895	16,980	17,065	17,150	17,236	17,322	17,409	17,496
2-inch	29,569	29,717	29,866	30,015	30,165	30,316	30,468	30,620	30,773	30,927
3-inch	2,501	2,514	2,526	2,539	2,552	2,564	2,577	2,590	2,603	2,616
4-inch	18,062	18,152	18,243	18,334	18,426	18,518	18,611	18,704	18,797	18,891
6-inch	10,943	10,998	11,053	11,108	11,164	11,220	11,276	11,332	11,389	11,446
8-inch	16,259	16,340	16,422	16,504	16,586	16,669	16,753	16,836	16,921	17,005
10-inch	1,669	1,678	1,686	1,695	1,703	1,712	1,720	1,729	1,737	1,746
12-inch	0	0	0	0	0	0	0	0	0	0
Total	114,171	114,742	115,315	115,892	116,471	117,054	117,639	118,227	118,818	119,412
<b>Irrigation</b>										
3/4-inch or smaller	103	103	103	103	103	103	103	103	103	103
1-inch	1,539	1,547	1,555	1,563	1,570	1,578	1,586	1,594	1,602	1,610
1-1/2-inch	1,866	1,875	1,885	1,894	1,904	1,913	1,923	1,932	1,942	1,952
2-inch	7,654	7,692	7,731	7,769	7,808	7,847	7,887	7,926	7,966	8,005
3-inch	279	280	282	283	284	286	287	289	290	292
4-inch	1,575	1,582	1,590	1,598	1,606	1,614	1,622	1,630	1,639	1,647
6-inch	469	471	474	476	478	481	483	486	488	491
8-inch	268	269	271	272	273	275	276	278	279	280
10-inch	0	0	0	0	0	0	0	0	0	0
12-inch	0	0	0	0	0	0	0	0	0	0
Total	13,753	13,821	13,889	13,958	14,028	14,097	14,167	14,238	14,308	14,379
<b>Private Fire Service</b>										
Private Hydrant	26,483	26,483	26,483	26,483	26,483	26,483	26,483	26,483	26,483	26,483
1-inch	39	39	39	39	39	39	39	39	39	39
1-1/2-inch	0	0	0	0	0	0	0	0	0	0
2-inch	7,194	7,194	7,194	7,194	7,194	7,194	7,194	7,194	7,194	7,194
3-inch	78	78	78	78	78	78	78	78	78	78
4-inch	22,011	22,011	22,011	22,011	22,011	22,011	22,011	22,011	22,011	22,011
6-inch	73,967	73,967	73,967	73,967	73,967	73,967	73,967	73,967	73,967	73,967
8-inch	75,662	75,662	75,662	75,662	75,662	75,662	75,662	75,662	75,662	75,662
10-inch	13,059	13,059	13,059	13,059	13,059	13,059	13,059	13,059	13,059	13,059
12-inch	5,686	5,686	5,686	5,686	5,686	5,686	5,686	5,686	5,686	5,686
Total	224,179	224,179	224,179	224,179	224,179	224,179	224,179	224,179	224,179	224,179
<b>Total Res, Dom, Irr, Fire Svc</b>										
3/4-inch or smaller	42,663	42,733	42,824	42,917	43,011	43,106	43,201	43,298	43,396	43,495
1-inch	175,370	176,043	177,136	178,247	179,374	180,520	181,682	182,861	184,056	185,269
1-1/2-inch	32,666	32,812	32,995	33,179	33,365	33,554	33,744	33,936	34,130	34,326
2-inch	45,106	45,295	45,486	45,679	45,872	46,067	46,262	46,458	46,656	46,855
3-inch	2,858	2,872	2,886	2,900	2,914	2,928	2,942	2,957	2,971	2,985
4-inch	41,648	41,746	41,845	41,944	42,043	42,144	42,244	42,345	42,447	42,549
6-inch	85,379	85,436	85,493	85,551	85,609	85,667	85,726	85,784	85,844	85,903
8-inch	92,189	92,272	92,355	92,438	92,522	92,606	92,691	92,776	92,862	92,948
10-inch	14,728	14,737	14,745	14,753	14,762	14,770	14,779	14,788	14,796	14,805
12-inch	5,686	5,686	5,686	5,686	5,686	5,686	5,686	5,686	5,686	5,686
Total	538,292	539,630	541,450	543,293	545,158	547,047	548,957	550,889	552,843	554,820
<b>Travel Meters</b>										
Travel Meters	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270
Total All	539,562	540,900	542,720	544,563	546,428	548,317	550,227	552,159	554,113	556,090

Notes:

1 Equivalent 3/4-inch meters are adjusted using water system distribution fire demand data provided by the City shown below.

	Res	Dom	Priv Fire
Maximum Fire Flow Demands >	1500	2500	3500
Maximum Fire Flow Demands % of SF >	100%	167%	233%



**Table A-8**  
**Domestic, Irrigation and Travel Meter Customer Class Water Use Characteristics, HCP**

Item	Actual	Actual	Projected <sup>2</sup>									
	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Water Use <sup>1</sup>												
Domestic												
Commercial	7,284,106	6,922,139	6,022,261	6,022,261	6,022,261	6,022,261	6,022,261	5,901,816	5,783,779	5,668,104	5,554,742	5,443,647
Schools	1,319,354	1,122,216	976,328	976,328	976,328	976,328	976,328	956,801	937,665	918,912	900,534	882,523
Industrial	2,533,829	2,668,071	2,321,221	2,321,221	2,321,221	2,321,221	2,321,221	2,274,797	2,229,301	2,184,715	2,141,021	2,098,200
Municipal	1,027,312	905,030	787,376	787,376	787,376	787,376	787,376	771,628	756,196	741,072	726,250	711,725
Multiple Family	9,666,157	9,051,621	7,874,910	7,874,910	7,874,910	7,874,910	7,874,910	7,717,412	7,563,064	7,411,803	7,263,567	7,118,295
Total	21,830,758	20,669,076	17,982,096	17,982,096	17,982,096	17,982,096	17,982,096	17,622,454	17,270,005	16,924,605	16,586,113	16,254,391
Irrigation												
Commercial	1,915,418	1,818,387	1,581,997	1,581,997	1,581,997	1,581,997	1,581,997	1,550,357	1,519,350	1,488,963	1,459,184	1,430,000
Schools	640,517	578,418	503,223	503,223	503,223	503,223	503,223	493,159	483,296	473,630	464,157	454,874
Industrial	7,283	4,207	3,660	3,660	3,660	3,660	3,660	3,587	3,515	3,445	3,376	3,308
Municipal	1,521,485	1,261,720	1,097,696	1,097,696	1,097,696	1,097,696	1,097,696	1,075,742	1,054,227	1,033,143	1,012,480	992,230
Multiple Family	262,143	258,224	224,655	224,655	224,655	224,655	224,655	220,162	215,759	211,444	207,215	203,071
Total	4,346,846	3,920,956	3,411,232	3,411,232	3,411,232	3,411,232	3,411,232	3,343,007	3,276,147	3,210,624	3,146,411	3,083,483
Total Dom and Irr												
Commercial	9,199,524	9,199,524	7,604,258	7,604,258	7,604,258	7,604,258	7,604,258	7,452,173	7,303,129	7,157,067	7,013,925	6,873,647
Schools	1,959,871	1,959,871	1,479,551	1,479,551	1,479,551	1,479,551	1,479,551	1,449,960	1,420,961	1,392,542	1,364,691	1,337,397
Industrial	2,541,112	2,541,112	2,324,881	2,324,881	2,324,881	2,324,881	2,324,881	2,248,384	2,232,816	2,188,160	2,144,397	2,101,509
Municipal	2,548,797	2,548,797	1,885,072	1,885,072	1,885,072	1,885,072	1,885,072	1,847,371	1,810,423	1,774,215	1,738,730	1,703,956
Multiple Family	9,928,300	9,309,845	8,099,566	8,099,566	8,099,566	8,099,566	8,099,566	7,937,574	7,778,823	7,623,246	7,470,781	7,321,366
Total	26,117,604	24,590,032	21,393,328	21,393,328	21,393,328	21,393,328	21,393,328	20,965,461	20,546,152	20,135,229	19,732,524	19,337,874
Travel Meters	138,890	125,001	125,001	125,001	125,001	125,001	125,001	125,001	125,001	125,001	125,001	125,001
Total All	26,316,494	24,715,033	21,518,329	21,518,329	21,518,329	21,518,329	21,518,329	21,090,462	20,671,153	20,260,230	19,857,525	19,462,875
Annual Change												
Amount		-1,601,461	-3,196,704	0	0	0	0	-427,867	-419,309	-410,923	-402,705	-394,650
Percent		-6.1%	-12.9%	0.0%	0.0%	0.0%	0.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%

Notes:

1 Actual FY10 and FY11 data was provided by the City.

2 Data for FY12 onward is based on the annual percent changes shown below:

[illegible]

Table A-9  
Backflow Prevention Program Accounts

Item		FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
<b>Number of Assemblies</b>													
<b>Double-check and/or Pressure Vacuum Breaker Assemblies</b>													
	<i>Annual % Inc<sup>a</sup></i>												
3/4"	0%	11	11	11	11	11	11	11	11	11	11	11	11
1"	0%	23	23	23	23	23	23	23	23	23	23	23	23
1-1/4"	0%	9	9	9	9	9	9	9	9	9	9	9	9
1-1/2"	0%	38	38	38	38	38	38	38	38	38	38	38	38
2"	0%	119	119	119	119	119	119	119	119	119	119	119	119
2-1/2"	0%	3	3	3	3	3	3	3	3	3	3	3	3
3"	0%	4	4	4	4	4	4	4	4	4	4	4	4
4"	0%	12	12	12	12	12	12	12	12	12	12	12	12
6"	0%	12	12	12	12	12	12	12	12	12	12	12	12
8"	0%	17	17	17	17	17	17	17	17	17	17	17	17
10"	0%	0	0	0	0	0	0	0	0	0	0	0	0
Total		248	248	248	248	248	248	248	248	248	248	248	248
<b>Reduced Pressure Principle Assemblies</b>													
	<i>Annual % Inc<sup>a</sup></i>												
3/4"	0%	493	493	493	493	493	493	493	493	493	493	493	493
1"	0%	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120
1-1/4"	1%	310	313	316	319	323	326	329	332	336	339	342	346
1-1/2"	1%	1,155	1,167	1,178	1,190	1,202	1,214	1,226	1,238	1,251	1,263	1,276	1,289
2"	1%	2,428	2,452	2,477	2,502	2,527	2,552	2,577	2,603	2,629	2,655	2,682	2,709
2-1/2"	0%	230	230	230	230	230	230	230	230	230	230	230	230
3"	0%	380	380	380	380	380	380	380	380	380	380	380	380
4"	0%	395	395	395	395	395	395	395	395	395	395	395	395
6"	0%	97	97	97	97	97	97	97	97	97	97	97	97
8"	0%	38	38	38	38	38	38	38	38	38	38	38	38
10"	0%	17	17	17	17	17	17	17	17	17	17	17	17
Total		6,663	6,702	6,741	6,781	6,821	6,862	6,902	6,944	6,986	7,028	7,070	7,113
Total All Assemblies		6,911	6,950	6,989	7,029	7,069	7,110	7,150	7,192	7,234	7,276	7,318	7,361
<b>Number of Equivalent Assemblies</b>													
<b>Double-check and/or Pressure Vacuum Breaker Assemblies</b>													
	<i>Equiv Factor<sup>b</sup></i>												
3/4"	1.00	11	11	11	11	11	11	11	11	11	11	11	11
1"	1.00	23	23	23	23	23	23	23	23	23	23	23	23
1-1/4"	1.60	14	14	14	14	14	14	14	14	14	14	14	14
1-1/2"	3.30	125	125	125	125	125	125	125	125	125	125	125	125
2"	3.30	393	393	393	393	393	393	393	393	393	393	393	393
2-1/2"	11.60	35	35	35	35	35	35	35	35	35	35	35	35
3"	11.60	46	46	46	46	46	46	46	46	46	46	46	46
4"	11.60	139	139	139	139	139	139	139	139	139	139	139	139
6"	16.00	192	192	192	192	192	192	192	192	192	192	192	192
8"	35.00	595	595	595	595	595	595	595	595	595	595	595	595
10"	37.00	0	0	0	0	0	0	0	0	0	0	0	0
Total		1,574	1,574	1,574	1,574	1,574	1,574	1,574	1,574	1,574	1,574	1,574	1,574
<b>Reduced Pressure Principle Assemblies</b>													
3/4"	1.00	493	493	493	493	493	493	493	493	493	493	493	493
1"	1.00	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120
1-1/4"	1.60	496	501	506	511	516	521	527	532	537	542	548	553
1-1/2"	1.60	1,848	1,866	1,885	1,904	1,923	1,942	1,962	1,981	2,001	2,021	2,041	2,062
2"	1.60	3,885	3,924	3,963	4,003	4,043	4,083	4,124	4,165	4,207	4,249	4,291	4,334
2-1/2"	5.60	1,288	1,288	1,288	1,288	1,288	1,288	1,288	1,288	1,288	1,288	1,288	1,288
3"	5.60	2,128	2,128	2,128	2,128	2,128	2,128	2,128	2,128	2,128	2,128	2,128	2,128
4"	6.20	2,449	2,449	2,449	2,449	2,449	2,449	2,449	2,449	2,449	2,449	2,449	2,449
6"	6.20	601	601	601	601	601	601	601	601	601	601	601	601
8"	11.00	418	418	418	418	418	418	418	418	418	418	418	418
10"	12.00	204	204	204	204	204	204	204	204	204	204	204	204
Total		14,930	14,992	15,055	15,119	15,183	15,248	15,313	15,380	15,446	15,514	15,582	15,651
Total All Assemblies		16,504	16,566	16,629	16,693	16,757	16,822	16,887	16,953	17,020	17,088	17,156	17,225

Notes:

- 1 FY10 actual values were provided by the City.
- 2 The equivalency factors are based on the relative the cost of replacement part kits.

<u>Assembly Type</u>					<u>Reduced Pressure Principle Assemblies</u>				
<u>Size</u>	<u>Double-Check</u>	<u>Vacuum Breaker</u>	<u>Equiv Factor</u>			<u>Equiv Factor</u>			
			<u>Calc'd</u>	<u>Assign</u>		<u>Calc'd</u>	<u>Assign</u>		
3/4"	\$13		1.00	1.00	3/4"		1.00		
1"	\$13	\$30	1.00	1.00	1"	\$44	0.65	1.00	
1-1/4"	\$21	\$60	1.56	1.60	1-1/4"	\$68	1.00	1.60	
1-1/2"	\$44	\$60	3.25	3.30	1-1/2"	\$68	1.00	1.60	
2"	\$44	\$60	3.25	3.30	2"	\$68	1.00	1.60	
2-1/2"	\$156	N/A	11.64	11.60	2-1/2"	\$244	3.61	5.60	
3"	\$156	N/A	11.64	11.60	3"	\$244	3.61	5.60	
4"	\$165	N/A	12.28	11.60	4"	\$268	3.97	6.20	
6"	\$216	N/A	16.09	16.00	6"	\$277	4.10	6.20	
8"	\$470	N/A	34.99	35.00	8"	\$479	7.09	11.00	
10"	\$497	N/A	36.99	37.00	10"	\$519	7.69	12.00	

Table A-10  
Fluoridated Water Program

Item	Actual <sup>1</sup>		Projected <sup>2</sup>									
	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
<b>Customer Class</b>												
	<i>Annual % Inc <sup>2</sup></i>											
Commercial	0%	87	86	86	86	86	86	86	86	86	86	86
Schools	0%	6	6	6	6	6	6	6	6	6	6	6
PUD / Condos	0%	0	0	0	0	0	0	0	0	0	0	0
Multiple Family	0%	273	272	272	272	272	272	272	272	272	272	272
Single Family	2%	3,400	3,648	3,721	3,795	3,871	3,949	4,028	4,108	4,190	4,274	4,360
Senior Citizen	-2%	1,084	945	926	908	889	872	854	837	820	804	788
Total		4,850	4,957	5,011	5,067	5,125	5,184	5,246	5,309	5,375	5,442	5,512
Annual Change												
Amount			107	54	56	58	60	62	63	65	67	69
Percent		2.2%	1.1%	1.1%	1.1%	1.2%	1.2%	1.2%	1.2%	1.3%	1.3%	1.3%

Notes:

1 FY10 and FY11 actual values were provided by the City.

2 Data for FY12 onward is based on the annual percent changes shown.

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## **Appendix B: Expenditures, Revenues, Cash Flow, Target Balance and Debt Service Coverage**

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Table B-1  
Revenues, Expenditures, Fund Balances and Cash Flow Summary

Item	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Operating Revenues									
Unmetered / Meter and Quantity Charges	\$58,800,034	\$76,890,397	\$96,273,808	\$104,274,047	\$112,633,719	\$121,652,703	\$129,968,189	\$133,969,794	\$137,970,999
Less: rate increases effective less than full FY	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Backflow Prevention Program Charges	\$627,126	\$261,880	\$269,736	\$277,828	\$286,163	\$294,748	\$303,590	\$312,698	\$322,079
Fluoridated Water Program Charges	\$48,078	\$279,194	\$287,570	\$296,197	\$305,083	\$314,235	\$323,662	\$333,372	\$343,373
Miscellaneous Operating Charges		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Charges for Services	2,371,700	2,430,900	2,512,000	2,596,100	2,683,400	2,755,400	2,834,260	2,913,120	2,991,980
Interest Income--Enterprise Fund	\$303,215	\$315,931	\$265,483	\$381,421	\$266,379	\$390,554	\$398,495	\$397,497	\$412,644
Federal Reimbursement - BABS	\$2,134,000	\$2,134,000	\$2,134,000	\$2,134,000	\$2,134,000	\$2,134,000	\$2,134,000	\$2,134,000	\$2,134,000
Total Operating Revenues	\$64,555,215	\$82,312,301	\$101,742,597	\$109,959,593	\$118,468,744	\$127,541,640	\$135,962,197	\$140,060,481	\$144,175,075
Operating Expenses									
Labor and Benefits	\$12,383,500	\$14,585,200	\$15,426,900	\$16,285,400	\$17,261,100	\$18,625,040	\$19,770,580	\$20,916,120	\$22,061,660
Pumping Power	\$8,784,900	\$9,706,900	\$9,998,100	\$10,298,000	\$10,606,900	\$11,149,490	\$11,573,000	\$11,996,510	\$12,420,020
Source of Supply	\$5,530,600	\$7,611,600	\$7,803,700	\$8,001,300	\$8,204,600	\$9,151,670	\$9,725,440	\$10,299,210	\$10,872,980
All Other O&M	\$16,524,500	\$17,020,200	\$17,574,300	\$17,587,800	\$18,129,500	\$18,500,540	\$18,878,300	\$19,256,060	\$19,633,820
Additional Operating Expenses	\$0	\$1,125,000	\$1,028,700	\$1,082,500	\$1,236,400	\$1,323,567	\$1,421,417	\$1,531,267	\$1,635,117
Total Operating Expenses	\$43,223,500	\$50,048,900	\$51,831,700	\$53,255,000	\$55,438,500	\$58,750,307	\$61,374,737	\$63,999,167	\$66,623,597
Other Loan Payments (Non-debt service)	\$197,700	\$197,700	\$197,700	\$197,700	\$198,000	\$205,000	\$205,000	\$205,000	\$205,000
Total Expenses	\$43,421,200	\$50,246,600	\$52,029,400	\$53,452,700	\$55,636,500	\$58,955,307	\$61,579,737	\$64,204,167	\$66,828,597
Net Operating Revenues	\$21,134,015	\$32,065,701	\$49,713,197	\$56,506,893	\$62,832,244	\$68,586,334	\$74,382,460	\$75,856,315	\$77,346,478
Debt Service									
2003 Water Remediation Bonds	\$1,375,800	\$1,375,800	\$1,375,800	\$1,375,800	\$1,375,800	\$1,375,800	\$1,375,800	\$1,375,800	\$1,375,800
2010 Water Revenue Bonds A-1	\$6,409,800	\$6,411,600	\$6,412,000	\$6,434,000	\$6,434,000	\$6,434,000	\$6,434,000	\$6,434,000	\$6,434,000
2010 Water Revenue Bonds A-2	\$6,097,300	\$6,097,300	\$6,097,300	\$6,097,300	\$6,097,300	\$6,097,300	\$6,097,300	\$6,097,300	\$6,097,300
Prop 44 Loan Repayment #1	\$139,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Prop 44 Loan Repayment	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$115,200	\$115,200	\$115,200	\$115,200
SDWSRF Loan Repayment (CL2 Buildings)	\$115,200	\$115,200	\$115,200	\$115,200	\$115,200	\$115,200	\$115,200	\$115,200	\$115,200
SDWSRF Loan Repayment (Enterprise Canal)	\$77,400	\$77,400	\$77,400	\$77,400	\$77,400	\$77,400	\$77,400	\$77,400	\$77,400
2014 Water Revenue Bonds	\$3,276,300	\$3,276,300	\$6,552,600	\$6,552,600	\$6,552,600	\$6,552,600	\$6,552,600	\$6,552,600	\$6,552,600
2016 Water Revenue Bonds	\$0	\$0	\$0	\$9,240,300	\$18,480,700	\$18,480,700	\$18,480,700	\$18,480,700	\$18,480,700
2018 Bonds Water Revenue Bonds	\$0	\$0	\$0	\$0	\$0	\$5,595,780	\$11,191,559	\$11,191,559	\$11,191,559
SRF Loan for Residential Meter Retrofit	\$0	\$1,285,100	\$2,570,200	\$2,570,200	\$2,570,200	\$2,570,200	\$2,570,200	\$2,570,200	\$2,570,200
Less: 2010 Bonds Reserve Fund Interest	\$-175,000	\$-175,000	\$-392,900	\$-392,900	\$-392,900	\$-392,900	\$-392,900	\$-392,900	\$-392,900
Less: Projected Reserve Fund Interest	\$-76,600	\$-76,600	\$-76,600	\$-292,600	\$-292,600	\$-292,600	\$-292,600	\$-292,600	\$-292,600
Total Debt Service	\$14,083,400	\$18,507,100	\$22,851,000	\$31,897,300	\$41,017,700	\$46,613,480	\$52,209,259	\$52,209,259	\$52,209,259
Enterprise Net Income (net of Debt Service)	\$7,050,615	\$13,558,601	\$26,862,197	\$24,609,593	\$21,814,544	\$21,972,854	\$22,173,201	\$23,647,055	\$25,137,219
Reserve Fund Balance (Unrestricted Reserve) and Target									
Previous Ending Balance	\$30,321,543	\$31,593,058	\$13,274,159	\$19,071,056	\$21,318,950	\$19,527,694	\$19,924,754	\$19,874,873	\$20,632,180
Enterprise Net Income	\$7,050,615	\$13,558,601	\$26,862,197	\$24,609,593	\$21,814,544	\$21,972,854	\$22,173,201	\$23,647,055	\$25,137,219
Plus: Non-operating Revenue	\$2,008,100	\$775,000	\$790,500	\$806,300	\$822,400	\$847,100	\$872,500	\$898,700	\$925,700
Plus: Transfers from Rate Stabilization Fund									
Less: Enterprise Funded CIP									
Less: CIP 90 Contract Payment	\$-7,787,200	\$-14,717,600	\$-15,842,400	\$-21,769,800	\$-24,139,000	\$-22,422,894	\$-23,095,581	\$-23,788,448	\$-24,502,102
Less: Transfer to 2010 Bond Fund A-2 for CIP		\$-16,806,100	\$-1,108,000	\$-1,093,000	\$0				
Less: Transfer to DBCP for CIP		\$-618,100	\$-4,616,200	\$-16,000	\$0				
Less: Reserve Payments for State Loans		\$-510,700	\$-289,200	\$-289,200	\$-289,200				
Ending Enterprise Fund Balance	\$31,593,058	\$13,274,159	\$19,071,056	\$21,318,950	\$19,527,694	\$19,924,754	\$19,874,873	\$20,632,180	\$22,192,998

Notes:

1. Revenues from Unmetered / Meter and Quantity Charges are shown in detail in Table D-1, Table D-2, Table D-3 and Table D-4. All other values shown in the table were provided by the City except projected interest earnings.
2. Interest on the fund balance is based on the percentage rates shown below times the ending fund balance of the previous year.

FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
1.0%	1.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
3. Beginning in FY13, the City plans to revise the scope of its Backflow Prevention Program. Program costs for FY13-FY21 were provided by the City in a file named "Backflow Program Fee Update\_090512.xlsx." Tables from the file showing annual revenue from the fee and the fee amount are included in Appendix I.

Table B-2

Capital Improvement Program Summary, FY13-FY17

Proj ID	Title	FY13	FY14	FY15	FY16	FY17	FY13 to FY17 Total
WC00001	Fire Hydrant Installations	\$10,000	\$20,600	\$21,200	\$21,800	\$22,400	\$96,000
WC00004	Water Main Extensions	310,000	1,312,000	1,571,700	1,603,900	1,637,000	\$6,434,600
WC00005	Water Main Renewal	3,404,400	9,769,400	10,627,900	16,206,500	15,287,700	\$55,295,900
WC00015	Water Well Evaluation and Develop	50,000	103,100	106,200	109,500	112,800	\$481,600
WC00016	Water Well Construction	1,230,600	6,312,300	5,439,600	4,605,000	8,213,200	\$25,800,700
WC00017	Well Rehabilitation	844,500	1,397,000	1,400,000	1,427,000	1,454,800	\$6,523,300
WC00018	Pump Rehabilitation	356,500	809,000	818,200	827,700	837,500	\$3,648,900
WC00022	Leaky Acres	100,000	193,500	43,500	193,500	43,500	\$574,000
WC00023	Water Telemetry System	400,000	925,000	370,000	370,000	370,000	\$2,435,000
WC00024	Water Yard-Expansion/Improvement	100,000	103,000	106,100	109,300	112,500	\$530,900
WC00025	Water Well Abandonment/Destruct	125,200	125,000	128,800	132,700	136,700	\$648,400
WC00027	Inventory - Materials	100,000	206,000	212,200	218,600	225,200	\$962,000
WC00033	Recharge Facilities-Basins	15,100	156,000	160,600	165,300	170,200	\$667,200
WC00039	Source Wtr Protect--Enterprise Cnl	178,200	654,500	567,500	0	0	\$1,400,200
WC00050	City Recharge Basins	0	552,500	1,593,000	3,244,500	1,715,500	\$7,105,500
WC00051	Metropolitan Water Resources Plan	91,000	0	165,000	0	0	\$256,000
WC00053	Emergency Generator Sets	318,000	0	0	0	0	\$318,000
WC00057	SE Fresno Surface Water Treatment Plant	0	5,387,000	13,877,000	201,226,000	6,140,000	\$226,630,000
WC00059	T-1 Second Tank (T-2)	0	342,500	3,693,500	26,000	0	\$4,062,000
WC00061	T-4 -- Downtown Tank and Booster Pump Station	0	8,720,000	1,005,600	0	0	\$9,725,600
WC00064	UGM Water Fees Update Study	35,000	0	0	0	0	\$35,000
WC00065	SE/ SWTP Transmission Pipelines	0	0	18,821,000	17,204,500	13,556,400	\$49,581,900
WC00067	Renewable Energy Feasibility	11,700	100,000	0	0	0	\$111,700
WC00068	ASR Feasibility & Pilot Study	33,400	718,500	543,500	279,000	15,500	\$1,589,900
WC00074	Facility Security Feasibility Study	33,700	300,000	0	0	0	\$333,700
WC13002	Downtown Water System Upgrades	0	1,610,000	500,000	1,000,000	1,000,000	\$4,110,000
WC00077	Ft Washington Mitigation	16,900	150,000	0	0	0	\$166,900
WC13001	NE SWTF Expansion	0	0	0	0	0	\$0
WC00082	SW Industrial Hydraulic Model	23,000	0	0	0	0	\$23,000
TOTAL		\$7,787,200	\$39,966,900	\$61,772,100	\$248,970,800	\$51,050,900	\$409,547,900
FUND TOTALS							
40101	Water Enterprise Fund	\$7,787,200	\$14,717,600	\$15,842,400	\$21,769,800	\$24,139,000	\$84,256,000
40184	2013 Water Revenue Bond Fund	0	25,249,300	45,929,700	15,827,800	32,000	\$87,038,800
40185	2015 Water Revenue Bond Fund	0	0	0	211,373,200	26,879,900	\$238,253,100
40186	2017 Water Revenue Bond Fund	0	0	0	0	0	\$0
TOTAL		\$7,787,200	\$39,966,900	\$61,772,100	\$248,970,800	\$51,050,900	\$409,547,900





Table B-4  
Debt Service Coverage Evaluation

	Notes	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
2010 Indenture (without State Loan)	1.									
Coverage										
Revenues										
Current Revenues		\$64,555,215	\$82,312,301	\$101,742,597	\$109,959,593	\$118,468,744	\$127,541,540	\$135,962,197	\$140,060,481	\$144,175,075
Rate Stabilization Interest Earnings		\$26,300	\$26,600	\$26,900	\$27,200	\$27,200	\$27,200	\$27,200	\$27,200	\$27,200
Transfers - Rate Stabilization to Revenue Fund		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Less: Transfers - Revenue Fund to Rate Stab Fund		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Revenues		\$64,581,515	\$82,338,901	\$101,769,497	\$109,986,793	\$118,495,944	\$127,568,840	\$135,989,397	\$140,087,681	\$144,202,275
Net of:										
Maintenance and Operations Costs		\$43,421,200	\$50,246,600	\$52,029,400	\$53,452,700	\$55,636,500	\$58,955,307	\$61,579,737	\$64,204,167	\$66,828,597
Total Net		\$43,421,200	\$50,246,600	\$52,029,400	\$53,452,700	\$55,636,500	\$58,955,307	\$61,579,737	\$64,204,167	\$66,828,597
Total Net Revenue from Rates		\$21,160,315	\$32,092,301	\$49,740,097	\$56,534,093	\$62,859,444	\$68,613,534	\$74,409,660	\$75,883,515	\$77,373,678
Net Revenue Required										
Debt Service		\$14,083,400	\$18,507,100	\$22,851,000	\$31,897,300	\$41,017,700	\$46,613,480	\$52,209,259	\$52,209,259	\$52,209,259
Net Revenue Required, 1.25x		\$17,604,250	\$23,133,875	\$28,563,750	\$39,871,625	\$51,272,125	\$58,266,850	\$65,261,574	\$65,261,574	\$65,261,574
Evaluation of Covenant Performance										
Coverage Ratio		1.50	1.73	2.18	1.77	1.53	1.47	1.43	1.45	1.48
Amount Over/(Under) Requirement		\$3,556,065	\$8,958,426	\$21,176,347	\$16,662,468	\$11,587,319	\$10,346,684	\$9,148,086	\$10,621,940	\$12,112,104

Notes:

1. Indenture dated January 1, 2010 (2010 Indenture), for Water System Revenue Bonds 2010 Series A-1 (\$66,810,000) and 2010 Series A-2 (\$91,340,000)

## Appendix C: Allocation of Costs and Development of Charges and Fees

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Table C-1  
Allocation of Revenue Required from Charges

Item	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Revenue Required from Charges	\$76,875,000	\$96,094,000	\$103,782,000	\$112,188,000	\$121,275,000	\$129,764,000	\$133,657,000	\$137,667,000
Allocation to Functional Cost Categories								
Meter Charge								
Account	13.4%	13.4%	13.4%	13.4%	13.4%	13.4%	13.4%	13.4%
Domestic	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%
Fire	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
Total	34.0%	34.0%	34.0%	34.0%	34.0%	34.0%	34.0%	34.0%
Quantity Charge	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%
Allocation to Functional Cost Categories								
Meter Charge								
Account	\$10,301,250	\$12,876,596	\$13,906,788	\$15,033,192	\$16,250,850	\$17,388,376	\$17,910,038	\$18,447,378
Domestic	\$10,762,500	\$13,453,160	\$14,529,480	\$15,706,320	\$16,978,500	\$18,166,960	\$18,711,980	\$19,273,380
Fire	<u>\$5,073,750</u>	<u>\$6,342,204</u>	<u>\$6,849,612</u>	<u>\$7,404,408</u>	<u>\$8,004,150</u>	<u>\$8,564,424</u>	<u>\$8,821,362</u>	<u>\$9,086,022</u>
Total	\$26,137,500	\$32,671,960	\$35,285,880	\$38,143,920	\$41,233,500	\$44,119,760	\$45,443,380	\$46,806,780
Quantity Charge	<u>\$50,737,500</u>	<u>\$63,422,040</u>	<u>\$68,496,120</u>	<u>\$74,044,080</u>	<u>\$80,041,500</u>	<u>\$85,644,240</u>	<u>\$88,213,620</u>	<u>\$90,860,220</u>
Total	\$76,875,000	\$96,094,000	\$103,782,000	\$112,188,000	\$121,275,000	\$129,764,000	\$133,657,000	\$137,667,000

Table C-2  
Current and Projected Quantity Charges

Item	Current Rates	Projected							
		FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Revenue Required <sup>1</sup>		\$50,737,500	\$63,422,040	\$68,496,120	\$74,044,080	\$80,041,500	\$85,644,240	\$88,213,620	\$90,860,220
Water Use, HCF <sup>2</sup>									
Residential, Unmetered		0	0	0	0	0	0	0	0
Residential, Metered		24,115,104	24,268,680	24,424,632	24,583,176	24,744,096	24,907,392	25,073,064	25,241,328
Domestic		17,982,096	17,982,096	17,982,096	17,622,454	17,270,005	16,924,605	16,586,113	16,254,391
Irrigation		3,411,232	3,411,232	3,411,232	3,343,007	3,276,147	3,210,624	3,146,411	3,083,483
Travel Meters		125,001	125,001	125,001	125,001	125,001	125,001	125,001	125,001
Total		45,633,433	45,787,009	45,942,961	45,673,638	45,415,249	45,167,622	44,930,589	44,704,203
Quantity Rates, unrounded									
Revenue required		\$50,737,500	\$63,422,040	\$68,496,120	\$74,044,080	\$80,041,500	\$85,644,240	\$88,213,620	\$90,860,220
Water Use, HCF		45,633,433	45,787,009	45,942,961	45,673,638	45,415,249	45,167,622	44,930,589	44,704,203
Unit cost, \$/HCF		\$1.11	\$1.39	\$1.49	\$1.62	\$1.76	\$1.90	\$1.96	\$2.03
Quantity Rates, rounded up to \$0.01									
Residential	\$0.610	\$1.11	\$1.39	\$1.50	\$1.63	\$1.77	\$1.90	\$1.97	\$2.04
Nonresidential	\$0.745	\$1.11	\$1.39	\$1.50	\$1.63	\$1.77	\$1.90	\$1.97	\$2.04
Residential		82%	25%	8%	9%	9%	7%	4%	4%
Nonresidential		49%	25%	8%	9%	9%	7%	4%	4%

Notes:

1. Revenue requirements are from Table 4-1.
2. Water use for residential unmetered and metered accounts is from Table A-4. Water use for nonresidential accounts is from Table A-8.

Table C-3  
Meter Charge Unit Costs

Item	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
<b>Revenue Required <sup>1</sup></b>								
Account	\$10,301,250	\$12,876,596	\$13,906,788	\$15,033,192	\$16,250,850	\$17,388,376	\$17,910,038	\$18,447,378
Domestic	\$10,762,500	\$13,453,160	\$14,529,480	\$15,706,320	\$16,978,500	\$18,166,960	\$18,711,980	\$19,273,380
Fire	\$5,073,750	\$6,342,204	\$6,849,612	\$7,404,408	\$8,004,150	\$8,564,424	\$8,821,362	\$9,086,022
Total	\$26,137,500	\$32,671,960	\$35,285,880	\$38,143,920	\$41,233,500	\$44,119,760	\$45,443,380	\$46,806,780
<b>Account Unit Cost <sup>2</sup></b>								
Revenue required	\$10,301,250	\$12,876,596	\$13,906,788	\$15,033,192	\$16,250,850	\$17,388,376	\$17,910,038	\$18,447,378
Number of units, meters	134,224	135,032	135,851	136,682	137,525	138,379	139,245	140,123
Unit cost, \$/month	\$6.40	\$7.95	\$8.53	\$9.17	\$9.85	\$10.47	\$10.72	\$10.97
<b>Domestic Unit Cost <sup>2</sup></b>								
Revenue required	\$10,762,500	\$13,453,160	\$14,529,480	\$15,706,320	\$16,978,500	\$18,166,960	\$18,711,980	\$19,273,380
Number of units, eq. ¾" mtrs								
Total units	368,492	370,104	371,738	373,393	375,069	376,766	378,483	380,223
Less Private Fire Svc units	96,077	96,077	96,077	96,077	96,077	96,077	96,077	96,077
Net units	272,415	274,028	275,661	277,316	278,992	280,689	282,407	284,146
Unit cost, \$/eq. ¾" mtrs-month	\$3.29	\$4.09	\$4.39	\$4.72	\$5.07	\$5.39	\$5.52	\$5.65
<b>Fire Unit Cost <sup>2,3</sup></b>								
<u>Residential</u>								
Total Fire Service Revenue	\$5,073,750	\$6,342,204	\$6,849,612	\$7,404,408	\$8,004,150	\$8,564,424	\$8,821,362	\$9,086,022
Residential % Allocation	36%	36%	36%	36%	36%	36%	36%	36%
Revenue required	\$1,808,706	\$2,267,660	\$2,456,489	\$2,663,572	\$2,888,191	\$3,099,961	\$3,202,961	\$3,309,481
Number of units, eq. ¾" mtrs	188,066	189,264	190,480	191,717	192,972	194,245	195,537	196,849
Unit cost, \$/eq. ¾" mtrs-month	\$0.80	\$1.00	\$1.07	\$1.16	\$1.25	\$1.33	\$1.37	\$1.40
<u>Domestic</u>								
Total Fire Service Revenue	\$5,073,750	\$6,342,204	\$6,849,612	\$7,404,408	\$8,004,150	\$8,564,424	\$8,821,362	\$9,086,022
Residential % Allocation	22%	22%	22%	22%	22%	22%	22%	22%
Revenue required	\$1,109,031	\$1,388,554	\$1,502,048	\$1,626,259	\$1,760,693	\$1,886,789	\$1,946,281	\$2,007,591
Number of units, eq. ¾" mtrs	69,189	69,535	69,883	70,232	70,583	70,936	71,291	71,647
Unit cost, \$/eq. ¾" mtrs-month	\$1.34	\$1.66	\$1.79	\$1.93	\$2.08	\$2.22	\$2.28	\$2.34
<u>Private Fire Service</u>								
Total Fire Service Revenue	\$5,073,750	\$6,342,204	\$6,849,612	\$7,404,408	\$8,004,150	\$8,564,424	\$8,821,362	\$9,086,022
Residential % Allocation	42%	42%	42%	42%	42%	42%	42%	41%
Revenue required	\$2,156,013	\$2,685,990	\$2,891,075	\$3,114,577	\$3,355,266	\$3,577,673	\$3,672,120	\$3,768,950
Number of units, eq. ¾" mtrs	96,077	96,077	96,077	96,077	96,077	96,077	96,077	96,077
Unit cost, \$/eq. ¾" mtrs-month	\$1.87	\$2.33	\$2.51	\$2.70	\$2.91	\$3.10	\$3.19	\$3.27
<b>Residential</b>	<u>Eq. ¾" Mtrs</u>							
3/4-inch or smaller	1.00	\$10.49	\$13.04	\$14.00	\$15.05	\$16.17	\$17.20	\$17.61
1-inch	1.67	\$13.30	\$16.43	\$17.65	\$18.97	\$20.38	\$21.68	\$22.73
1-1/2-inch	3.33	\$20.05	\$24.92	\$26.76	\$28.76	\$30.91	\$32.89	\$33.68
2-inch	5.33	\$28.23	\$35.10	\$37.69	\$40.52	\$43.55	\$46.34	\$47.45
3-inch	10.67	\$50.07	\$62.24	\$66.85	\$71.86	\$77.25	\$82.19	\$84.18
4-inch	16.67	\$74.63	\$92.78	\$99.65	\$107.13	\$115.16	\$122.53	\$125.50
6-inch	33.33	\$142.86	\$177.61	\$190.77	\$205.09	\$220.47	\$234.59	\$240.28
8-inch	53.33	\$224.73	\$279.40	\$300.11	\$322.64	\$346.85	\$369.06	\$378.01
10-inch	76.67	\$320.26	\$398.16	\$427.67	\$459.78	\$494.28	\$525.94	\$538.70
12-inch	143.33	\$593.17	\$737.47	\$792.14	\$851.61	\$915.52	\$974.17	\$997.80
<b>Domestic</b>	<u>Eq. ¾" Mtrs</u>							
3/4-inch or smaller	1.00	\$11.03	\$13.71	\$14.72	\$15.82	\$17.00	\$18.09	\$18.52
1-inch	1.67	\$14.11	\$17.54	\$18.84	\$20.25	\$21.77	\$23.16	\$23.72
1-1/2-inch	3.33	\$21.83	\$27.14	\$29.15	\$31.34	\$33.69	\$35.84	\$36.71
2-inch	5.33	\$31.08	\$38.65	\$41.51	\$44.63	\$47.99	\$51.06	\$52.31
3-inch	10.67	\$55.77	\$69.34	\$74.49	\$80.10	\$86.12	\$91.65	\$93.89
4-inch	16.67	\$83.53	\$103.87	\$111.59	\$119.99	\$129.02	\$137.31	\$140.67
6-inch	33.33	\$160.67	\$199.79	\$214.65	\$230.82	\$248.19	\$264.15	\$270.61
8-inch	53.33	\$253.23	\$314.90	\$338.32	\$363.80	\$391.19	\$416.35	\$426.54
10-inch	76.67	\$361.22	\$449.19	\$482.60	\$518.95	\$558.03	\$593.92	\$608.47
12-inch	143.33	\$669.76	\$832.87	\$894.83	\$962.25	\$1,034.70	\$1,101.26	\$1,128.24
<b>Irrigation</b>	<u>Eq. ¾" Mtrs</u>							
3/4-inch or smaller	1.00	\$9.69	\$12.04	\$12.93	\$13.89	\$14.92	\$15.87	\$16.25
1-inch	1.67	\$11.89	\$14.77	\$15.86	\$17.04	\$18.30	\$19.47	\$19.93
1-1/2-inch	3.33	\$17.37	\$21.59	\$23.18	\$24.90	\$26.76	\$28.45	\$29.82
2-inch	5.33	\$23.96	\$29.77	\$31.96	\$34.34	\$36.90	\$39.24	\$40.17
3-inch	10.67	\$41.52	\$51.59	\$55.39	\$59.51	\$63.95	\$68.01	\$69.62
4-inch	16.67	\$61.27	\$76.14	\$81.74	\$87.83	\$94.38	\$100.37	\$102.75
6-inch	33.33	\$116.14	\$144.32	\$154.95	\$166.50	\$178.90	\$190.26	\$194.78
8-inch	53.33	\$181.99	\$226.15	\$242.79	\$260.89	\$280.33	\$298.13	\$305.21
10-inch	76.67	\$258.81	\$321.61	\$345.28	\$371.02	\$398.66	\$423.98	\$434.05
12-inch	143.33	\$478.30	\$594.35	\$638.10	\$685.67	\$736.75	\$783.55	\$802.15

**Table C-3**  
**Meter Charge Unit Costs**

Item		FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Private Fire Service	<i>Eq. ¾" Mtrs</i>								
Private Hydrant	16.67	\$37.57	\$46.78	\$50.33	\$54.20	\$58.36	\$62.20	\$63.81	\$65.46
1-inch	16.67	\$37.57	\$46.78	\$50.33	\$54.20	\$58.36	\$62.20	\$63.81	\$65.46
1-1/2-inch	16.67	\$37.57	\$46.78	\$50.33	\$54.20	\$58.36	\$62.20	\$63.81	\$65.46
2-inch	16.67	\$37.57	\$46.78	\$50.33	\$54.20	\$58.36	\$62.20	\$63.81	\$65.46
2-1/2 and 3-inch	16.67	\$37.57	\$46.78	\$50.33	\$54.20	\$58.36	\$62.20	\$63.81	\$65.46
4-inch	16.67	\$37.57	\$46.78	\$50.33	\$54.20	\$58.36	\$62.20	\$63.81	\$65.46
6-inch	33.33	\$68.74	\$85.61	\$92.12	\$99.22	\$106.86	\$113.91	\$116.89	\$119.94
8-inch	53.33	\$106.14	\$132.20	\$142.27	\$153.25	\$165.06	\$175.98	\$180.59	\$185.33
10-inch	76.67	\$149.77	\$186.56	\$200.79	\$216.28	\$232.97	\$248.38	\$254.91	\$261.60
12-inch	143.33	\$274.44	\$341.88	\$367.96	\$396.38	\$426.99	\$455.26	\$467.25	\$479.54

Notes:

1. Revenue requirements are from Table C-1.
  2. The projected number of residential meters is from Table A-4. The projected number of nonresidential meters is from Table A-5. The projected number of residential and nonresidential equivalent meters is from Table A-6.
- Unit costs are based on meters and equivalent meters for both unmetered and metered residential accounts.

3. The Fire Protection revenue requirement is allocated to customer classes based on the adjusted number of equivalent 3/4-inch meters from Table A-7.

[illegible]



Table C-4  
Current and Recommended Meter Charges

Item	Current	Recommended							
		FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Residential <sup>1</sup>									
3/4-inch or smaller	\$10.03	\$10.50	\$13.00	\$14.00	\$15.00	\$16.20	\$17.20	\$17.60	\$18.00
1-inch	\$13.51	\$13.30	\$16.40	\$17.70	\$19.00	\$20.40	\$21.70	\$22.20	\$22.70
1-1/2-inch	\$18.89	\$20.10	\$24.90	\$26.80	\$28.80	\$30.90	\$32.90	\$33.70	\$34.50
2-inch	\$27.09	\$28.20	\$35.10	\$37.70	\$40.50	\$43.50	\$46.30	\$47.40	\$48.60
3-inch	\$45.07	\$50.10	\$62.20	\$66.90	\$71.90	\$77.30	\$82.20	\$84.20	\$86.20
4-inch	\$63.03	\$74.60	\$92.80	\$99.70	\$107.00	\$115.00	\$123.00	\$126.00	\$129.00
6-inch	\$99.01	\$143.00	\$178.00	\$191.00	\$205.00	\$220.00	\$235.00	\$240.00	\$246.00
8-inch	\$152.96	\$225.00	\$279.00	\$300.00	\$323.00	\$347.00	\$369.00	\$378.00	\$387.00
10-inch	\$179.83	\$320.00	\$398.00	\$428.00	\$460.00	\$494.00	\$526.00	\$539.00	\$552.00
12-inch		\$593.00	\$737.00	\$792.00	\$852.00	\$916.00	\$974.00	\$998.00	\$1,022.00
Domestic <sup>1</sup>									
3/4-inch or smaller	\$10.03	\$11.00	\$13.70	\$14.70	\$15.80	\$17.00	\$18.10	\$18.50	\$19.00
1-inch	\$13.51	\$14.10	\$17.50	\$18.80	\$20.30	\$21.80	\$23.20	\$23.70	\$24.30
1-1/2-inch	\$18.89	\$21.80	\$27.10	\$29.20	\$31.30	\$33.70	\$35.80	\$36.70	\$37.60
2-inch	\$27.09	\$31.10	\$38.60	\$41.50	\$44.60	\$48.00	\$51.10	\$52.30	\$53.60
3-inch	\$45.07	\$55.80	\$69.30	\$74.50	\$80.10	\$86.10	\$91.70	\$93.90	\$96.20
4-inch	\$63.03	\$83.50	\$104.00	\$112.00	\$120.00	\$129.00	\$137.00	\$141.00	\$144.00
6-inch	\$99.01	\$161.00	\$200.00	\$215.00	\$231.00	\$248.00	\$264.00	\$271.00	\$277.00
8-inch	\$152.96	\$253.00	\$315.00	\$338.00	\$364.00	\$391.00	\$416.00	\$427.00	\$437.00
10-inch	\$179.83	\$361.00	\$449.00	\$483.00	\$519.00	\$558.00	\$594.00	\$608.00	\$623.00
12-inch		\$670.00	\$833.00	\$895.00	\$962.00	\$1,035.00	\$1,101.00	\$1,128.00	\$1,156.00
Irrigation <sup>1</sup>									
3/4-inch or smaller	\$10.03	\$9.70	\$12.00	\$12.90	\$13.90	\$14.90	\$15.90	\$16.30	\$16.60
1-inch	\$13.51	\$11.90	\$14.80	\$15.90	\$17.00	\$18.30	\$19.50	\$19.90	\$20.40
1-1/2-inch	\$18.89	\$17.40	\$21.60	\$23.20	\$24.90	\$26.80	\$28.50	\$29.10	\$29.80
2-inch	\$27.09	\$24.00	\$29.80	\$32.00	\$34.30	\$36.90	\$39.20	\$40.20	\$41.10
3-inch	\$45.07	\$41.50	\$51.60	\$55.40	\$59.50	\$63.90	\$68.00	\$69.60	\$71.30
4-inch	\$63.03	\$61.30	\$76.10	\$81.70	\$87.80	\$94.40	\$100.00	\$103.00	\$105.00
6-inch	\$99.01	\$116.00	\$144.00	\$155.00	\$167.00	\$179.00	\$190.00	\$195.00	\$199.00
8-inch	\$152.96	\$182.00	\$226.00	\$243.00	\$261.00	\$280.00	\$298.00	\$305.00	\$312.00
10-inch	\$179.83	\$259.00	\$322.00	\$345.00	\$371.00	\$399.00	\$424.00	\$434.00	\$444.00
12-inch		\$478.00	\$594.00	\$638.00	\$686.00	\$737.00	\$784.00	\$802.00	\$821.00
Private Fire Service <sup>1</sup>									
Private Hydrant	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
1-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
1-1/2-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
2-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
2-1/2 and 3-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
4-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
6-inch	\$35.94	\$68.70	\$85.60	\$92.10	\$99.20	\$107.00	\$114.00	\$117.00	\$120.00
8-inch	\$47.92	\$106.00	\$132.00	\$142.00	\$153.00	\$165.00	\$176.00	\$181.00	\$185.00
10-inch	\$59.90	\$150.00	\$187.00	\$201.00	\$216.00	\$233.00	\$248.00	\$255.00	\$262.00
12-inch	\$71.88	\$274.00	\$342.00	\$368.00	\$396.00	\$427.00	\$455.00	\$467.00	\$480.00

Table C-4  
Current and Recommended Meter Charges

Item	Current	Recommended							
		FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Residential									
3/4-inch or smaller	0%	25%	24%	8%	7%	8%	6%	2%	2%
1-inch	0%	25%	23%	8%	7%	7%	6%	2%	2%
1-1/2-inch	0%	25%	24%	8%	7%	7%	6%	2%	2%
2-inch	0%	24%	24%	7%	7%	7%	6%	2%	3%
3-inch	0%	24%	24%	8%	7%	8%	6%	2%	2%
4-inch	0%	24%	24%	7%	7%	7%	7%	2%	2%
6-inch	0%	24%	24%	7%	7%	7%	7%	2%	2%
8-inch	0%	24%	24%	8%	8%	7%	6%	2%	2%
10-inch	0%	24%	24%	8%	7%	7%	6%	2%	2%
12-inch			24%	7%	8%	8%	6%	2%	2%
Domestic									
3/4-inch or smaller	0%	24%	25%	7%	7%	8%	6%	2%	3%
1-inch	0%	25%	24%	7%	8%	7%	6%	2%	3%
1-1/2-inch	0%	24%	24%	8%	7%	8%	6%	3%	2%
2-inch	0%	24%	24%	8%	7%	8%	6%	2%	2%
3-inch	0%	24%	24%	8%	8%	7%	7%	2%	2%
4-inch	0%	24%	25%	8%	7%	8%	6%	3%	2%
6-inch	0%	25%	24%	8%	7%	7%	6%	3%	2%
8-inch	0%	24%	25%	7%	8%	7%	6%	3%	2%
10-inch	0%	24%	24%	8%	7%	8%	6%	2%	2%
12-inch			24%	7%	7%	8%	6%	2%	2%
Irrigation									
3/4-inch or smaller	0%	24%	24%	8%	8%	7%	7%	3%	2%
1-inch	0%	24%	24%	7%	7%	8%	7%	2%	3%
1-1/2-inch	0%	24%	24%	7%	7%	8%	6%	2%	2%
2-inch	0%	24%	24%	7%	7%	8%	6%	3%	2%
3-inch	0%	24%	24%	7%	7%	7%	6%	2%	2%
4-inch	0%	24%	24%	7%	7%	8%	6%	3%	2%
6-inch	0%	24%	24%	8%	8%	7%	6%	3%	2%
8-inch	0%	25%	24%	8%	7%	7%	6%	2%	2%
10-inch	0%	25%	24%	7%	8%	8%	6%	2%	2%
12-inch			24%	7%	8%	7%	6%	2%	2%
Private Fire Service									
Private Hydrant	0%	25%	24%	7%	8%	8%	7%	3%	3%
1-inch	0%	25%	24%	7%	8%	8%	7%	3%	3%
1-1/2-inch	0%	25%	24%	7%	8%	8%	7%	3%	3%
2-inch	0%	25%	24%	7%	8%	8%	7%	3%	3%
2-1/2 and 3-inch	0%	25%	24%	7%	8%	8%	7%	3%	3%
4-inch	0%	25%	24%	7%	8%	8%	7%	3%	3%
6-inch	0%	24%	25%	8%	8%	8%	7%	3%	3%
8-inch	0%	24%	25%	8%	8%	8%	7%	3%	2%
10-inch	0%	25%	25%	7%	7%	8%	6%	3%	3%
12-inch	0%	25%	25%	8%	8%	8%	7%	3%	3%

Table C-5  
Residential Flat Charges

Item	Current	Projected <sup>1</sup>								
		FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Residential Flat Charges <sup>2</sup>										
Single Family, \$/month										
First 6000 sq ft lot size	\$22.87	\$24.85	\$28.32	\$35.15	\$37.85	\$40.90	\$44.21	\$47.29	\$48.69	\$50.11
Each additional 100 sq ft lot size	\$0.228	\$0.251	\$0.286	\$0.355	\$0.382	\$0.412	\$0.446	\$0.477	\$0.491	\$0.505
Senior Citizen, \$/month										
First 6000 sq ft lot size	\$20.56	\$22.37	\$25.49	\$31.64	\$34.07	\$36.81	\$39.79	\$42.56	\$43.82	\$45.10
Each additional 100 sq ft lot size	\$0.204	\$0.226	\$0.257	\$0.320	\$0.344	\$0.371	\$0.401	\$0.429	\$0.442	\$0.455
Notes:										
1. Projected charges are based on the methodology shown below.										
A. Determine Revenue Requirement for Residential as if All Accounts Were Unmetered										
Meter Charges										
Meters by Size										
3/4-inch or smaller	8,305	8,336	8,388	8,442	8,496	8,551	8,607	8,664	8,721	8,780
1-inch	97,875	98,242	98,861	99,491	100,130	100,780	101,440	102,109	102,788	103,478
1-1/2-inch	4,222	4,238	4,264	4,292	4,319	4,347	4,376	4,404	4,434	4,463
2-inch	129	130	130	131	132	133	134	135	136	136
Total	110,530	110,945	111,644	112,355	113,077	113,811	114,556	115,312	116,079	116,858
Meters Charges										
3/4-inch or smaller	\$10.03	\$10.03	\$10.50	\$13.00	\$14.00	\$15.00	\$16.20	\$17.20	\$17.60	\$18.00
1-inch	\$13.51	\$13.51	\$13.30	\$16.40	\$17.70	\$19.00	\$20.40	\$21.70	\$22.20	\$22.70
1-1/2-inch	\$18.89	\$18.89	\$20.10	\$24.90	\$26.80	\$28.80	\$30.90	\$32.90	\$33.70	\$34.50
2-inch	\$27.09	\$27.09	\$28.20	\$35.10	\$37.70	\$40.50	\$43.50	\$46.30	\$47.40	\$48.60
Meters Charge Revenue	\$17,865,916	\$17,932,996	\$17,907,816	\$22,234,216	\$24,143,667	\$26,083,963	\$28,197,914	\$30,191,102	\$31,094,864	\$32,011,367
Quantity Charges										
% Allocation to Residential										
Total Unmetered Residential HCF	34,485,360	34,614,840	34,832,928	35,054,760	35,280,024	35,509,032	35,741,472	35,977,344	36,216,648	36,459,696
Total Nonresidential HCF	21,518,329	21,518,329	21,518,329	21,518,329	21,518,329	21,090,462	20,671,153	20,260,230	19,857,525	19,462,875
Total All HCF	56,003,689	56,133,169	56,351,257	56,573,089	56,798,353	56,599,494	56,412,625	56,237,574	56,074,173	55,922,571
% Residential HCF	62%	62%	62%	62%	62%	63%	63%	64%	65%	65%
\$ Allocation to Residential										
Total All Quantity Charge \$	\$40,590,000	\$40,590,000	\$50,737,500	\$63,422,040	\$68,496,120	\$74,044,080	\$80,041,500	\$85,644,240	\$88,213,620	\$90,860,220
% Residential HCF	62%	62%	62%	62%	62%	63%	63%	64%	65%	65%
Residential HCF\$	\$24,994,082	\$25,030,056	\$31,362,844	\$39,298,621	\$42,546,036	\$46,453,306	\$50,712,071	\$54,789,922	\$56,974,565	\$59,237,906
Total Revenue Requirement	\$42,859,998	\$42,963,052	\$49,270,660	\$61,532,837	\$66,689,703	\$72,537,269	\$78,909,985	\$84,981,023	\$88,069,429	\$91,249,273
B. Allocate the Total Revenue Requirements Between Each Charge Type and Divide by the Number of Units										
Number of Units										
Accounts	110,530	110,945	111,644	112,355	113,077	113,811	114,556	115,312	116,079	116,858
Add'l 100 sq ft	3,276,725	3,289,193	3,310,192	3,331,554	3,353,245	3,375,299	3,397,681	3,420,394	3,443,436	3,466,840
Revenue Requirement Allocation										
First 6000 sq ft	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%	77.0%
Each add'l 100 sq ft	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%
Charges										
First 6000 sq ft	\$24.89	\$24.85	\$28.32	\$35.15	\$37.85	\$40.90	\$44.21	\$47.29	\$48.69	\$50.11
Each add'l 100 sq ft	\$0.251	\$0.251	\$0.286	\$0.355	\$0.382	\$0.412	\$0.446	\$0.477	\$0.491	\$0.505
Evaluation of Annual Charges										
# Change										
First 6000 sq ft	\$2.02	-\$0.04	\$3.47	\$6.83	\$2.70	\$3.05	\$3.31	\$3.08	\$1.40	\$1.42
Each add'l 100 sq ft	\$0.023	\$0.000	\$0.035	\$0.069	\$0.027	\$0.030	\$0.034	\$0.031	\$0.014	\$0.014
% Change										
First 6000 sq ft	8.8%	-0.2%	14.0%	24.1%	7.7%	8.1%	8.1%	7.0%	3.0%	2.9%
Each add'l 100 sq ft	10.1%	0.0%	13.9%	24.1%	7.6%	7.9%	8.3%	7.0%	2.9%	2.9%
C. Projected charges are rounded to the nearest \$0.01 for the base charge and \$0.001 for the additional unit charge.										
2. The cost of the Senior Citizen Rate Program is shown below for residential flat charges.										
Total Number of Units, Senior Citizens										
Accounts	13,554	13,604	13,688	13,774	13,861	13,950	14,040	14,131	14,223	14,317
Add'l 100 sq ft	445,969	447,614	450,378	453,208	456,071	458,999	461,960	464,954	467,981	471,074
Non-metered Number of Units										
Accounts	4,799	449	0	0	0	0	0	0	0	0
Add'l 100 sq ft	158,485	14,825	0	0	0	0	0	0	0	0
Full Charges										
Accounts	\$22.87	\$24.85	\$28.32	\$35.15	\$37.85	\$40.90	\$44.21	\$47.29	\$48.69	\$50.11
Add'l 100 sq ft	\$0.228	\$0.251	\$0.286	\$0.355	\$0.382	\$0.412	\$0.446	\$0.477	\$0.491	\$0.505
% Reduction in Charges	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
Reduced Charges										
Accounts	\$20.58	\$22.37	\$25.49	\$31.64	\$34.07	\$36.81	\$39.79	\$42.56	\$43.82	\$45.10
Add'l 100 sq ft	\$0.205	\$0.226	\$0.257	\$0.320	\$0.344	\$0.371	\$0.401	\$0.429	\$0.442	\$0.455
\$ Reduction in Charges										
Accounts	\$2.29	\$2.48	\$2.83	\$3.51	\$3.78	\$4.09	\$4.42	\$4.73	\$4.87	\$5.01
Add'l 100 sq ft	\$0.023	\$0.025	\$0.029	\$0.036	\$0.038	\$0.041	\$0.045	\$0.048	\$0.049	\$0.051
Cost of Program										
Accounts	\$131,885	\$13,359	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Add'l 100 sq ft	\$43,362	\$4,465	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$175,246	\$17,824	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Table C-6  
Fluoridated Water Program Expenditures and Charges

Item	3-Year Avg. <sup>1</sup> FY10	Estimated <sup>2</sup> FY11	Projected <sup>2</sup>		Recommended								
			FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	
Expenses													
Labor and Benefits	\$139,948	\$145,686	\$150,057	\$154,559	\$159,195	\$163,971	\$168,890	\$173,957	\$179,176	\$184,551	\$190,087	\$195,790	
Pumping Power	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Source of Supply and Chemicals	\$29,850	\$31,074	\$32,006	\$32,966	\$33,955	\$34,974	\$36,023	\$37,104	\$38,217	\$39,364	\$40,545	\$41,761	
All Other O&M	\$33,141	\$34,499	\$35,534	\$36,600	\$37,698	\$38,829	\$39,994	\$41,194	\$42,430	\$43,703	\$45,014	\$46,364	
Capital Outlay	\$42,500	\$44,243	\$45,570	\$46,937	\$48,345	\$49,795	\$51,289	\$52,828	\$54,413	\$56,045	\$57,726	\$59,458	
Total	\$245,439	\$255,502	\$263,167	\$271,062	\$279,194	\$287,570	\$296,197	\$305,083	\$314,235	\$323,662	\$333,372	\$343,373	
Unit Costs <sup>3</sup>													
Revenue required				\$271,062	\$279,194	\$287,570	\$296,197	\$305,083	\$314,235	\$323,662	\$333,372	\$343,373	
Number of units				5,067	5,125	5,184	5,246	5,309	5,375	5,442	5,512	5,583	
Unit cost, \$/month	\$4.52	\$4.52	\$4.52	\$4.46	\$4.54	\$4.62	\$4.71	\$4.79	\$4.87	\$4.96	\$5.04	\$5.13	

Notes:

- FY10 values were provided by the City sorted by Activity/Description/Account codes and represent the three-year average of FY 8, FY 9 and FY 10 values.  
The Labor and benefits value is the sum of all account codes beginning with " 51xxx."

The Labor and benefits value is then marked up to account for overhead costs not included in the original value.

<i>Labor/Benefits</i>		
<i>Labor and</i>	<i>Ovhd Esc</i>	
<i>Benefits</i>	<i>add 70%</i>	<i>Total</i>
\$82,323	\$57,626	\$139,948

The Source of Supply and Chemicals value is for account code 56114, Specialty Chemicals & Gases.

The All Other O&M value is the sum of all other account codes.

- Values for FY11 and beyond are escalated at the annual rates shown below:  
FY11 4.1%  
FY12 3.0%  
FY13 3.0%  
FY14 3.0%  
FY15 3.0%  
FY16 3.0%  
FY17 3.0%  
FY18 3.0%  
FY19 3.0%  
FY20 3.0%  
FY21 3.0%
- Revenue requirements for FY 10 and FY 11 are the product of the number of units and the unit cost. Revenue requirements for FY 12 onward are the sum of expenses. Unit costs for FY 12 onward are the annual revenue requirements divided by the number of units.

Table C-7  
Cost of Service Based Charges

Item	Current	Recommended							
		FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Meter Rates, \$/month									
Residential									
3/4-inch or smaller	\$10.03	\$10.50	\$13.00	\$14.00	\$15.00	\$16.20	\$17.20	\$17.60	\$18.00
1-inch	\$13.51	\$13.30	\$16.40	\$17.70	\$19.00	\$20.40	\$21.70	\$22.20	\$22.70
1-1/2-inch	\$18.89	\$20.10	\$24.90	\$26.80	\$28.80	\$30.90	\$32.90	\$33.70	\$34.50
2-inch	\$27.09	\$28.20	\$35.10	\$37.70	\$40.50	\$43.50	\$46.30	\$47.40	\$48.60
3-inch	\$45.07	\$50.10	\$62.20	\$66.90	\$71.90	\$77.30	\$82.20	\$84.20	\$86.20
4-inch	\$63.03	\$74.60	\$92.80	\$99.70	\$107.00	\$115.00	\$123.00	\$126.00	\$129.00
6-inch	\$99.01	\$143.00	\$178.00	\$191.00	\$205.00	\$220.00	\$235.00	\$240.00	\$246.00
8-inch	\$152.96	\$225.00	\$279.00	\$300.00	\$323.00	\$347.00	\$369.00	\$378.00	\$387.00
10-inch	\$179.83	\$320.00	\$398.00	\$428.00	\$460.00	\$494.00	\$526.00	\$539.00	\$552.00
12-inch		\$593.00	\$737.00	\$792.00	\$852.00	\$916.00	\$974.00	\$998.00	\$1,022.00
Domestic									
3/4-inch or smaller	\$10.03	\$11.00	\$13.70	\$14.70	\$15.80	\$17.00	\$18.10	\$18.50	\$19.00
1-inch	\$13.51	\$14.10	\$17.50	\$18.80	\$20.30	\$21.80	\$23.20	\$23.70	\$24.30
1-1/2-inch	\$18.89	\$21.80	\$27.10	\$29.20	\$31.30	\$33.70	\$35.80	\$36.70	\$37.60
2-inch	\$27.09	\$31.10	\$38.60	\$41.50	\$44.60	\$48.00	\$51.10	\$52.30	\$53.60
3-inch	\$45.07	\$55.80	\$69.30	\$74.50	\$80.10	\$86.10	\$91.70	\$93.90	\$96.20
4-inch	\$63.03	\$83.50	\$104.00	\$112.00	\$120.00	\$129.00	\$137.00	\$141.00	\$144.00
6-inch	\$99.01	\$161.00	\$200.00	\$215.00	\$231.00	\$248.00	\$264.00	\$271.00	\$277.00
8-inch	\$152.96	\$253.00	\$315.00	\$338.00	\$364.00	\$391.00	\$416.00	\$427.00	\$437.00
10-inch	\$179.83	\$361.00	\$449.00	\$483.00	\$519.00	\$558.00	\$594.00	\$608.00	\$623.00
12-inch		\$670.00	\$833.00	\$895.00	\$962.00	\$1,035.00	\$1,101.00	\$1,128.00	\$1,156.00
Irrigation									
3/4-inch or smaller	\$10.03	\$9.70	\$12.00	\$12.90	\$13.90	\$14.90	\$15.90	\$16.30	\$16.60
1-inch	\$13.51	\$11.90	\$14.80	\$15.90	\$17.00	\$18.30	\$19.50	\$19.90	\$20.40
1-1/2-inch	\$18.89	\$17.40	\$21.60	\$23.20	\$24.90	\$26.80	\$28.50	\$29.10	\$29.80
2-inch	\$27.09	\$24.00	\$29.80	\$32.00	\$34.30	\$36.90	\$39.20	\$40.20	\$41.10
3-inch	\$45.07	\$41.50	\$51.60	\$55.40	\$59.50	\$63.90	\$68.00	\$69.60	\$71.30
4-inch	\$63.03	\$61.30	\$76.10	\$81.70	\$87.80	\$94.40	\$100.00	\$103.00	\$105.00
6-inch	\$99.01	\$116.00	\$144.00	\$155.00	\$167.00	\$179.00	\$190.00	\$195.00	\$199.00
8-inch	\$152.96	\$182.00	\$226.00	\$243.00	\$261.00	\$280.00	\$298.00	\$305.00	\$312.00
10-inch	\$179.83	\$259.00	\$322.00	\$345.00	\$371.00	\$399.00	\$424.00	\$434.00	\$444.00
12-inch		\$478.00	\$594.00	\$638.00	\$686.00	\$737.00	\$784.00	\$802.00	\$821.00
Private Fire Service									
Private Hydrant	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
1-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
1-1/2-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
2-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
2-1/2 and 3-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
4-inch	\$23.94	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
6-inch	\$35.94	\$68.70	\$85.60	\$92.10	\$99.20	\$107.00	\$114.00	\$117.00	\$120.00
8-inch	\$47.92	\$106.00	\$132.00	\$142.00	\$153.00	\$165.00	\$176.00	\$181.00	\$185.00
10-inch	\$59.90	\$150.00	\$187.00	\$201.00	\$216.00	\$233.00	\$248.00	\$255.00	\$262.00
12-inch	\$71.88	\$274.00	\$342.00	\$368.00	\$396.00	\$427.00	\$455.00	\$467.00	\$480.00
Travel Meters	\$45.07	\$50.10	\$62.20	\$66.90	\$71.90	\$77.30	\$82.20	\$84.20	\$86.20
Quantity Rates, \$/HCF									
All Classes	\$0.745	\$1.11	\$1.39	\$1.50	\$1.63	\$1.77	\$1.90	\$1.97	\$2.04
Residential, FY11 Only	\$0.61								
Fluoridation Rates, \$/month	\$4.52	\$4.54	\$4.62	\$4.71	\$4.79	\$4.87	\$4.96	\$5.04	\$5.13

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## **Appendix D: Revenue from Charges and Fees and Impact on Customer Bills**

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Table D-1  
Residential Customer Class Revenue from Charges

Item	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
<b>Water Use</b>								
Metered Accounts <sup>1, 2, 3</sup>								
Water Use, HCF	24,115,104	24,268,680	24,424,632	24,583,176	24,744,096	24,907,392	25,073,064	25,241,328
Rate, \$/HCF	<u>\$1.110</u>	<u>\$1.390</u>	<u>\$1.500</u>	<u>\$1.630</u>	<u>\$1.770</u>	<u>\$1.900</u>	<u>\$1.970</u>	<u>\$2.040</u>
Revenue	\$26,767,765	\$33,733,465	\$36,636,948	\$40,070,577	\$43,797,050	\$47,324,045	\$49,393,936	\$51,492,309
<b>Accounts and Meters <sup>1, 2, 3</sup></b>								
Metered								
Number of Meters								
3/4-inch or smaller	8,388	8,442	8,496	8,551	8,607	8,664	8,721	8,780
1-inch	98,861	99,491	100,130	100,780	101,440	102,109	102,788	103,478
1-1/2-inch	4,264	4,292	4,319	4,347	4,376	4,404	4,434	4,463
2-inch	130	131	132	133	134	135	136	136
Rate, \$/Meter-month								
3/4-inch or smaller	\$10.50	\$13.00	\$14.00	\$15.00	\$16.20	\$17.20	\$17.60	\$18.00
1-inch	\$13.30	\$16.40	\$17.70	\$19.00	\$20.40	\$21.70	\$22.20	\$22.70
1-1/2-inch	\$20.10	\$24.90	\$26.80	\$28.80	\$30.90	\$32.90	\$33.70	\$34.50
2-inch	\$28.20	\$35.10	\$37.70	\$40.50	\$43.50	\$46.30	\$47.40	\$48.60
Revenue								
3/4-inch or smaller	\$1,056,917	\$1,316,897	\$1,427,311	\$1,539,188	\$1,673,205	\$1,788,213	\$1,841,970	\$1,896,475
1-inch	\$15,778,227	\$19,579,762	\$21,267,611	\$22,977,829	\$24,832,427	\$26,589,208	\$27,382,796	\$28,187,429
1-1/2-inch	\$1,028,560	\$1,282,301	\$1,389,016	\$1,502,363	\$1,622,462	\$1,738,876	\$1,793,006	\$1,847,889
2-inch	<u>\$44,112</u>	<u>\$55,255</u>	<u>\$59,730</u>	<u>\$64,582</u>	<u>\$69,820</u>	<u>\$74,805</u>	<u>\$77,092</u>	<u>\$79,574</u>
Total	\$17,907,816	\$22,234,216	\$24,143,667	\$26,083,963	\$28,197,914	\$30,191,102	\$31,094,864	\$32,011,367
Unmetered Accounts								
Number of Accounts								
Senior Citizen	0	0	0	0	0	0	0	0
All Other	0	0	0	0	0	0	0	0
Rate, \$/Account-month								
Senior Citizen	\$25.49	\$31.64	\$34.07	\$36.81	\$39.79	\$42.56	\$43.82	\$45.10
All Other	\$28.32	\$35.15	\$37.85	\$40.90	\$44.21	\$47.29	\$48.69	\$50.11
Revenue								
Senior Citizen	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
All Other	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Additional 100 Square Feet <sup>2, 3</sup></b>								
Number of Units								
Senior Citizen	0	0	0	0	0	0	0	0
All Other	0	0	0	0	0	0	0	0
Rate, \$/Unit-month								
Senior Citizen	\$0.257	\$0.320	\$0.344	\$0.371	\$0.401	\$0.429	\$0.442	\$0.455
All Other	\$0.286	\$0.355	\$0.382	\$0.412	\$0.446	\$0.477	\$0.491	\$0.505
Revenue								
Senior Citizen	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
All Other	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total Revenue</b>								
Water Use	\$26,767,765	\$33,733,465	\$36,636,948	\$40,070,577	\$43,797,050	\$47,324,045	\$49,393,936	\$51,492,309
Meters	\$17,907,816	\$22,234,216	\$24,143,667	\$26,083,963	\$28,197,914	\$30,191,102	\$31,094,864	\$32,011,367
Accounts	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Additional 100 Sq Ft	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$44,675,581	\$55,967,681	\$60,780,615	\$66,154,540	\$71,994,964	\$77,515,146	\$80,488,800	\$83,503,676
Annual # Change	\$11,913,565	\$11,292,100	\$4,812,934	\$5,373,925	\$5,840,424	\$5,520,182	\$2,973,654	\$3,014,876
Annual % Change	36.4%	25.3%	8.6%	8.8%	8.8%	7.7%	3.8%	3.7%

Notes:

1. Water use and number of meters are from Table A-4.
2. Water rates are from the most current Master Fee Schedule.
3. The number of unmetered accounts and additional 100 square feet are from Table A-1.

Table D-2  
Domestic and Travel Meters Customer Class Revenue from Charges

Item	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
<b>Water Use</b>								
Metered Accounts <sup>1,2</sup>								
Water Use, HCF								
Domestic	17,982,096	17,982,096	17,982,096	17,622,454	17,270,005	16,924,605	16,586,113	16,254,391
Travel Meters	<u>125,001</u>	<u>125,001</u>	<u>125,001</u>	<u>125,001</u>	<u>125,001</u>	<u>125,001</u>	<u>125,001</u>	<u>125,001</u>
Total	18,107,097	18,107,097	18,107,097	17,747,455	17,395,006	17,049,606	16,711,114	16,379,392
Rate, \$/HCF	<u>\$1.110</u>	<u>\$1.390</u>	<u>\$1.500</u>	<u>\$1.630</u>	<u>\$1.770</u>	<u>\$1.900</u>	<u>\$1.970</u>	<u>\$2.040</u>
Revenue								
Domestic	\$19,960,127	\$24,995,114	\$26,973,144	\$28,724,600	\$30,567,909	\$32,156,750	\$32,674,643	\$33,158,957
Travel Meters	<u>\$138,751</u>	<u>\$173,751</u>	<u>\$187,502</u>	<u>\$203,752</u>	<u>\$221,252</u>	<u>\$237,502</u>	<u>\$246,252</u>	<u>\$255,002</u>
Total	\$20,098,878	\$25,168,865	\$27,160,646	\$28,928,352	\$30,789,161	\$32,394,252	\$32,920,895	\$33,413,959
<b>Meters <sup>1,2,3</sup></b>								
Domestic and Travel Meters								
Number of Meters								
3/4-inch or smaller	4,710	4,733	4,757	4,781	4,805	4,829	4,853	4,877
1-inch	3,879	3,898	3,917	3,937	3,957	3,977	3,996	4,016
1-1/2-inch	3,041	3,056	3,072	3,087	3,102	3,118	3,134	3,149
2-inch	3,360	3,377	3,394	3,411	3,428	3,445	3,462	3,479
3-inch	142	143	144	144	145	146	146	147
4-inch	657	660	663	667	670	673	677	680
6-inch	199	200	201	202	203	204	205	206
8-inch	185	186	187	188	188	189	190	191
10-inch	13	13	13	13	13	14	14	14
12-inch	0	0	0	0	0	0	0	0
Travel Meters	119	119	119	119	119	119	119	119
Rate, \$/Meter-month								
3/4-inch or smaller	\$11.00	\$13.70	\$14.70	\$15.80	\$17.00	\$18.10	\$18.50	\$19.00
1-inch	\$14.10	\$17.50	\$18.80	\$20.30	\$21.80	\$23.20	\$23.70	\$24.30
1-1/2-inch	\$21.80	\$27.10	\$29.20	\$31.30	\$33.70	\$35.80	\$36.70	\$37.60
2-inch	\$31.10	\$38.60	\$41.50	\$44.60	\$48.00	\$51.10	\$52.30	\$53.60
3-inch	\$55.80	\$69.30	\$74.50	\$80.10	\$86.10	\$91.70	\$93.90	\$96.20
4-inch	\$83.50	\$104.00	\$112.00	\$120.00	\$129.00	\$137.00	\$141.00	\$144.00
6-inch	\$161.00	\$200.00	\$215.00	\$231.00	\$248.00	\$264.00	\$271.00	\$277.00
8-inch	\$253.00	\$315.00	\$338.00	\$364.00	\$391.00	\$416.00	\$427.00	\$437.00
10-inch	\$361.00	\$449.00	\$483.00	\$519.00	\$558.00	\$594.00	\$608.00	\$623.00
12-inch	\$670.00	\$833.00	\$895.00	\$962.00	\$1,035.00	\$1,101.00	\$1,128.00	\$1,156.00
Travel Meters	\$41.50	\$51.60	\$55.40	\$59.50	\$63.90	\$68.00	\$69.60	\$71.30
Revenue								
3/4-inch or smaller	\$621,713	\$778,187	\$839,164	\$906,468	\$980,191	\$1,048,833	\$1,077,372	\$1,112,022
1-inch	\$656,259	\$818,579	\$883,785	\$959,071	\$1,035,088	\$1,107,069	\$1,136,583	\$1,171,184
1-1/2-inch	\$795,569	\$993,932	\$1,076,307	\$1,159,481	\$1,254,629	\$1,339,475	\$1,380,015	\$1,420,926
2-inch	\$1,253,914	\$1,564,087	\$1,690,004	\$1,825,326	\$1,974,299	\$2,112,315	\$2,172,729	\$2,237,869
3-inch	\$95,157	\$118,770	\$128,320	\$138,656	\$149,787	\$160,327	\$164,994	\$169,881
4-inch	\$658,067	\$823,727	\$891,526	\$959,982	\$1,037,141	\$1,106,967	\$1,144,983	\$1,175,191
6-inch	\$384,381	\$479,879	\$518,449	\$559,816	\$604,020	\$646,204	\$666,655	\$684,822
8-inch	\$560,882	\$701,823	\$756,832	\$819,125	\$884,284	\$945,528	\$975,383	\$1,003,217
10-inch	\$57,165	\$71,455	\$77,251	\$83,423	\$90,141	\$96,436	\$99,203	\$102,158
12-inch	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Travel Meters	\$59,297	\$73,728	\$79,158	\$85,016	\$91,303	\$97,161	\$99,447	\$101,876
Total	\$5,142,404	\$6,424,166	\$6,940,795	\$7,496,366	\$8,100,883	\$8,660,315	\$8,917,363	\$9,179,147
<b>Total Revenue</b>								
Domestic								
Water Use	\$19,960,127	\$24,995,114	\$26,973,144	\$28,724,600	\$30,567,909	\$32,156,750	\$32,674,643	\$33,158,957
Meters	<u>\$5,083,107</u>	<u>\$6,350,438</u>	<u>\$6,861,638</u>	<u>\$7,411,350</u>	<u>\$8,009,580</u>	<u>\$8,563,154</u>	<u>\$8,817,916</u>	<u>\$9,077,271</u>
Total	\$25,043,234	\$31,345,552	\$33,834,782	\$36,135,951	\$38,577,489	\$40,719,904	\$41,492,559	\$42,236,228
Annual # Change	\$7,512,387	\$6,302,318	\$2,489,230	\$2,301,169	\$2,441,538	\$2,142,415	\$772,655	\$743,669
Annual % Change	42.9%	25.2%	7.9%	6.8%	6.8%	5.6%	1.9%	1.8%
Travel Meters								
Water Use	\$138,751	\$173,751	\$187,502	\$203,752	\$221,252	\$237,502	\$246,252	\$255,002
Meters	<u>\$59,297</u>	<u>\$73,728</u>	<u>\$79,158</u>	<u>\$85,016</u>	<u>\$91,303</u>	<u>\$97,161</u>	<u>\$99,447</u>	<u>\$101,876</u>
Total	\$198,048	\$247,480	\$266,659	\$288,768	\$312,555	\$334,663	\$345,699	\$356,878
Annual # Change	\$40,524	\$49,432	\$19,180	\$22,108	\$23,787	\$22,108	\$11,036	\$11,179
Annual % Change	25.7%	25.0%	7.8%	8.3%	8.2%	7.1%	3.3%	3.2%

- Notes:
1. Water use is from Table A-8. The number of meters is from Table A-5.
  2. Water rates are from the most current Master Fee Schedule.
  3. Travel meters are billed as 3-inch meters.

Table D-3  
Irrigation Customer Class Revenue from Charges

Item	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
<b>Water Use</b>								
Metered Accounts <sup>1,2</sup>								
Water Use, HCF	3,411,232	3,411,232	3,411,232	3,343,007	3,276,147	3,210,624	3,146,411	3,083,483
Rate, \$/HCF	<u>\$1.110</u>	<u>\$1.390</u>	<u>\$1.500</u>	<u>\$1.630</u>	<u>\$1.770</u>	<u>\$1.900</u>	<u>\$1.970</u>	<u>\$2.040</u>
Revenue	\$3,786,467	\$4,741,612	\$5,116,847	\$5,449,101	\$5,798,780	\$6,100,185	\$6,198,430	\$6,290,306
<b>Meters <sup>1,2</sup></b>								
<b>Irrigation</b>								
Number of Meters								
3/4-inch or smaller	103	103	103	103	103	103	103	103
1-inch	933	938	942	947	952	956	961	966
1-1/2-inch	565	568	571	574	577	580	583	585
2-inch	1,450	1,457	1,464	1,471	1,479	1,486	1,494	1,501
3-inch	26	27	27	27	27	27	27	27
4-inch	95	96	96	97	97	98	98	99
6-inch	14	14	14	14	14	15	15	15
8-inch	5	5	5	5	5	5	5	5
10-inch	0	0	0	0	0	0	0	0
12-inch	0	0	0	0	0	0	0	0
Rate, \$/Meter-month								
3/4-inch or smaller	\$9.70	\$12.00	\$12.90	\$13.90	\$14.90	\$15.90	\$16.30	\$16.60
1-inch	\$11.90	\$14.80	\$15.90	\$17.00	\$18.30	\$19.50	\$19.90	\$20.40
1-1/2-inch	\$17.40	\$21.60	\$23.20	\$24.90	\$26.80	\$28.50	\$29.10	\$29.80
2-inch	\$24.00	\$29.80	\$32.00	\$34.30	\$36.90	\$39.20	\$40.20	\$41.10
3-inch	\$41.50	\$51.60	\$55.40	\$59.50	\$63.90	\$68.00	\$69.60	\$71.30
4-inch	\$61.30	\$76.10	\$81.70	\$87.80	\$94.40	\$100.00	\$103.00	\$105.00
6-inch	\$116.00	\$144.00	\$155.00	\$167.00	\$179.00	\$190.00	\$195.00	\$199.00
8-inch	\$182.00	\$226.00	\$243.00	\$261.00	\$280.00	\$298.00	\$305.00	\$312.00
10-inch	\$259.00	\$322.00	\$345.00	\$371.00	\$399.00	\$424.00	\$434.00	\$444.00
12-inch	\$478.00	\$594.00	\$638.00	\$686.00	\$737.00	\$784.00	\$802.00	\$821.00
Revenue								
3/4-inch or smaller	\$11,989	\$14,832	\$15,944	\$17,180	\$18,416	\$19,652	\$20,147	\$20,518
1-inch	\$133,212	\$166,503	\$179,773	\$193,171	\$208,983	\$223,800	\$229,533	\$236,476
1-1/2-inch	\$118,055	\$147,284	\$158,984	\$171,487	\$185,496	\$198,248	\$203,434	\$209,369
2-inch	\$417,464	\$520,943	\$562,199	\$605,620	\$654,784	\$699,075	\$720,493	\$740,307
3-inch	\$13,143	\$16,424	\$17,721	\$19,128	\$20,645	\$22,080	\$22,712	\$23,383
4-inch	\$70,189	\$87,571	\$94,485	\$102,047	\$110,266	\$117,392	\$121,518	\$124,497
6-inch	\$19,782	\$24,679	\$26,698	\$28,908	\$31,140	\$33,219	\$34,264	\$35,142
8-inch	\$11,085	\$13,833	\$14,948	\$16,136	\$17,397	\$18,608	\$19,140	\$19,677
10-inch	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
12-inch	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$794,918	\$992,068	\$1,070,752	\$1,153,677	\$1,247,128	\$1,332,075	\$1,371,242	\$1,409,370
<b>Total Revenue</b>								
Water Use	\$3,786,467	\$4,741,612	\$5,116,847	\$5,449,101	\$5,798,780	\$6,100,185	\$6,198,430	\$6,290,306
Meters	<u>\$794,918</u>	<u>\$992,068</u>	<u>\$1,070,752</u>	<u>\$1,153,677</u>	<u>\$1,247,128</u>	<u>\$1,332,075</u>	<u>\$1,371,242</u>	<u>\$1,409,370</u>
Total	\$4,581,385	\$5,733,680	\$6,187,599	\$6,602,779	\$7,045,908	\$7,432,260	\$7,569,672	\$7,699,675
Annual # Change	\$1,168,660	\$1,152,295	\$453,919	\$415,179	\$443,129	\$386,352	\$137,412	\$130,003
Annual % Change	34.2%	25.2%	7.9%	6.7%	6.7%	5.5%	1.8%	1.7%

Notes:

1. Water use is from Table A-8. The number of meters is from Table A-5.
2. Water rates are from the most current Master Fee Schedule.

Table D-4  
Private Fire Service Customer Class Revenue from Charges

Item	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
<b>Water Use</b>								
Metered Accounts <sup>1,2</sup>								
Water Use, HCF	0	0	0	0	0	0	0	0
Rate, \$/HCF	<u>\$1.110</u>	<u>\$1.390</u>	<u>\$1.500</u>	<u>\$1.630</u>	<u>\$1.770</u>	<u>\$1.900</u>	<u>\$1.970</u>	<u>\$2.040</u>
Revenue	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Meters <sup>1,2,3</sup></b>								
<b>Private Fire Service</b>								
<b>Number of Meters</b>								
3/4-inch or smaller	681	681	681	681	681	681	681	681
1-inch	1	1	1	1	1	1	1	1
1-1/2-inch	0	0	0	0	0	0	0	0
2-inch	185	185	185	185	185	185	185	185
3-inch	2	2	2	2	2	2	2	2
4-inch	566	566	566	566	566	566	566	566
6-inch	951	951	951	951	951	951	951	951
8-inch	608	608	608	608	608	608	608	608
10-inch	73	73	73	73	73	73	73	73
12-inch	17	17	17	17	17	17	17	17
<b>Rate, \$/Meter-month</b>								
3/4-inch or smaller	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
1-inch	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
1-1/2-inch	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
2-inch	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
3-inch	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
4-inch	\$37.60	\$46.80	\$50.30	\$54.20	\$58.40	\$62.20	\$63.80	\$65.50
6-inch	\$68.70	\$85.60	\$92.10	\$99.20	\$107.00	\$114.00	\$117.00	\$120.00
8-inch	\$106.00	\$132.00	\$142.00	\$153.00	\$165.00	\$176.00	\$181.00	\$185.00
10-inch	\$150.00	\$187.00	\$201.00	\$216.00	\$233.00	\$248.00	\$255.00	\$262.00
12-inch	\$274.00	\$342.00	\$368.00	\$396.00	\$427.00	\$455.00	\$467.00	\$480.00
<b>Revenue</b>								
3/4-inch or smaller	\$307,267	\$382,450	\$411,052	\$442,922	\$477,245	\$508,298	\$521,374	\$535,266
1-inch	\$451	\$562	\$604	\$650	\$701	\$746	\$766	\$786
1-1/2-inch	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2-inch	\$83,472	\$103,896	\$111,666	\$120,324	\$129,648	\$138,084	\$141,636	\$145,410
3-inch	\$902	\$1,123	\$1,207	\$1,301	\$1,402	\$1,493	\$1,531	\$1,572
4-inch	\$255,379	\$317,866	\$341,638	\$368,126	\$396,653	\$422,462	\$433,330	\$444,876
6-inch	\$784,004	\$976,867	\$1,051,045	\$1,132,070	\$1,221,084	\$1,300,968	\$1,335,204	\$1,369,440
8-inch	\$773,376	\$963,072	\$1,036,032	\$1,116,288	\$1,203,840	\$1,284,096	\$1,320,576	\$1,349,760
10-inch	\$131,400	\$163,812	\$176,076	\$189,216	\$204,108	\$217,248	\$223,380	\$229,512
12-inch	\$55,896	\$69,768	\$75,072	\$80,784	\$87,108	\$92,820	\$95,268	\$97,920
Total	\$2,392,148	\$2,979,415	\$3,204,391	\$3,451,682	\$3,721,788	\$3,966,216	\$4,073,064	\$4,174,542
<b>Total Revenue</b>								
Water Use	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Meters	<u>\$2,392,148</u>	<u>\$2,979,415</u>	<u>\$3,204,391</u>	<u>\$3,451,682</u>	<u>\$3,721,788</u>	<u>\$3,966,216</u>	<u>\$4,073,064</u>	<u>\$4,174,542</u>
Total	\$2,392,148	\$2,979,415	\$3,204,391	\$3,451,682	\$3,721,788	\$3,966,216	\$4,073,064	\$4,174,542
Annual # Change	\$1,167,658	\$587,267	\$224,976	\$247,291	\$270,106	\$244,428	\$106,848	\$101,478
Annual % Change	95.4%	24.5%	7.6%	7.7%	7.8%	6.6%	2.7%	2.5%

Notes:

1. Water use is from Table A-8. The number of meters is from Table A-5.
2. Water rates are from the most current Master Fee Schedule.

Table D-5

## Revenue from Charges by Customer Class

	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
<b>Annual Totals</b>								
Residential								
Metered	44,675,581	55,967,681	60,780,615	66,154,540	71,994,964	77,515,146	80,488,800	83,503,676
Unmetered	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	44,675,581	55,967,681	60,780,615	66,154,540	71,994,964	77,515,146	80,488,800	83,503,676
Domestic	25,241,282	31,593,031	34,101,441	36,424,718	38,890,044	41,054,567	41,838,258	42,593,106
Irrigation	4,581,385	5,733,680	6,187,599	6,602,779	7,045,908	7,432,260	7,569,672	7,699,675
Fire Service	<u>2,392,148</u>	<u>2,979,415</u>	<u>3,204,391</u>	<u>3,451,682</u>	<u>3,721,788</u>	<u>3,966,216</u>	<u>4,073,064</u>	<u>4,174,542</u>
Total	76,890,397	96,273,808	104,274,047	112,633,719	121,652,703	129,968,189	133,969,794	137,970,999
<b>% of Total</b>								
Residential	58.1%	58.1%	58.3%	58.7%	59.2%	59.6%	60.1%	60.5%
Domestic	32.8%	32.8%	32.7%	32.3%	32.0%	31.6%	31.2%	30.9%
Irrigation	6.0%	6.0%	5.9%	5.9%	5.8%	5.7%	5.7%	5.6%
Fire Service	<u>3.1%</u>	<u>3.1%</u>	<u>3.1%</u>	<u>3.1%</u>	<u>3.1%</u>	<u>3.1%</u>	<u>3.0%</u>	<u>3.0%</u>
Total	100%	100%	100%	100%	100%	100%	100%	100%
<b>Annual Change</b>								
Residential								
Metered	13,248,775	11,292,100	4,812,934	5,373,925	5,840,424	5,520,182	2,973,654	3,014,876
Unmetered	<u>-1,335,210</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	11,913,565	11,292,100	4,812,934	5,373,925	5,840,424	5,520,182	2,973,654	3,014,876
Domestic	7,552,912	6,351,749	2,508,410	2,323,277	2,465,325	2,164,523	783,691	754,848
Irrigation	1,168,660	1,152,295	453,919	415,179	443,129	386,352	137,412	130,003
Fire Service	<u>1,167,658</u>	<u>587,267</u>	<u>224,976</u>	<u>247,291</u>	<u>270,106</u>	<u>244,428</u>	<u>106,848</u>	<u>101,478</u>
Total	21,802,795	19,383,411	8,000,239	8,359,672	9,018,984	8,315,486	4,001,605	4,001,205
<b>Annual % Change</b>								
Residential	36%	25%	9%	9%	9%	8%	4%	4%
Domestic	43%	25%	8%	7%	7%	6%	2%	2%
Irrigation	34%	25%	8%	7%	7%	5%	2%	2%
Fire Service	<u>95%</u>	<u>25%</u>	<u>8%</u>	<u>8%</u>	<u>8%</u>	<u>7%</u>	<u>3%</u>	<u>2%</u>
Total	40%	25%	8%	8%	8%	7%	3%	3%

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## Appendix E: Master Fee Schedule

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Master Fee Schedule for Water Rates dated June 30, 2010, pp 154-159

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**CITY OF FRESNO  
MASTER FEE SCHEDULE**

**PUBLIC UTILITIES DEPARTMENT**

**WATER RATES\*\***

<b><u>Fee Description &amp; Unit/Time *</u></b>	<b><u>Current</u></b>	<b><u>Amnd</u></b>
<b>Water Service Charges, Flat Rate***</b> (single-family only)		Amend
For premises containing only a single-family residence, the total charge shall be the basic rate plus applicable additional charges.		Effective
Basic rate (per month):		9/1/2008
First 6,000 square feet or less of lot size	22.87	
Each additional 100 square feet	0.228	
Senior Citizen (62 years or older) meeting all the conditions listed below:		
1. Single-family residents only;		
2. Service must be in name of senior citizen;		
3. Occupants of residence must be senior citizen or dependants of senior citizen (not to exceed three occupants per residence);		
4. Benefitting senior citizen must notify the City when they no longer qualify.		
Basic Rate (per month):		
First 6,000 square foot or less of lot size	20.56	
Each additional 100 square feet	0.204	
Additional charges will be added to the basic rate for the following:		
Additional living unit, same premises (until metered) / per month	11.78	
Air conditioning/refrigeration unit (not equipped with water-saving devices) / ton per month	11.99	
Discharge water into dry well / ton per month	5.99	
Air conditioning/refrigeration unit (installed and equipped with water-saving devices) / ton per month	3.08	

\* Rates effective 9/1/08

\*\* Rates shall be adjusted annually by staff during the budget process to reflect the rates in effect as per Res. No. 2007-79

\*\*\* Flat rate water service charges for single family residential customers shall sunset as of January 1, 2013 or until all single family residences are metered, whichever comes first.

**CITY OF FRESNO  
MASTER FEE SCHEDULE**

**PUBLIC UTILITIES DEPARTMENT**

**WATER RATES\*\***

<b><u>Fee Description &amp; Unit/Time *</u></b>	<b><u>Current</u></b>	<b><u>Amnd</u></b>
<b>Water, Metered Service Rate</b> total charge shall be standby charge plus quantity charge based on usage.		Amend Effective 9/1/2008
Standby charge, meter size (per month):		
3/4-inch or smaller	10.03	
1-inch	13.51	
1-1/2-inch	18.89	
2-inch	27.09	
3-inch	45.07	
4-inch	63.02	
6-inch	99.01	
8-inch	152.96	
10-inch	179.83	
Quantity charge:		
Customers Other Than Single Family Residential		
Each 100 Cubic Feet (HCF)	0.745	
1,000 gallons	0.995	
Single Family Residential		487
Each 100 Cubic Feet (HCF)	0.610	Effective 3/1/2010
1,000 gallons	0.810	
Water drawn from a fire hydrant / Minimum per month	29.97	
Wells, private (used for irrigation or commercial purposes when required to be metered)		
Each HCF	0.218	
1,000 gallons	0.290	
<b>Backflow Prevention, Service Inspection, and Maintenance</b>		In-Lieu 06/05
Double-check and/or pressure vacuum breaker assemblies (per month):		
3/4- and 1-inch	6.70	
1-1/4-, 1-1/2-, and 2-inch	8.92	
2-1/2-, 3-, and 4-inch	17.83	
6- and 8-inch	26.73	
10-inch	44.57	
Reduced pressure principle assemblies (per month):		
3/4-inch	6.70	
1-inch	8.92	
1-1/4-inch	11.12	
1-1/2- and 2-inch	13.42	
2-1/2- and 3-inch	15.62	
4-inch	17.83	
6-inch	26.73	
8-inch	35.65	
10-inch	53.48	

\* Rates effective 9/1/08

\*\* Rates shall be adjusted annually by staff during the budget process to reflect the rates in effect as per Res. No. 2007-79

**CITY OF FRESNO  
MASTER FEE SCHEDULE**

**PUBLIC UTILITIES DEPARTMENT**

**WATER RATES\*\***

<b><u>Fee Description &amp; Unit/Time</u></b>	<b><u>Current</u></b>	<b><u>Amnd</u></b>
<b>Water, Temporary Service*</b>		456
Residential (non-metered)		
Each 24 hours	25.00	
Each additional day	+Daily Rate (prorated based on bimonthly rate)	
Single Family Residential (metered)	See Water Metered Service Rates	487 Effective
Fire hydrant permit	25.00	3/1/2010
Fire hydrant wrench deposit	90.00	
3-inch meter, turbine		464
Deposit	496.00	
Deposits required shall be refunded upon the return of all equipment. Deductions shall be made for water service charges due and the cost of repair or replacement of damaged equipment. Any additional replacement costs will be billed to the customer.		
<b>Well Drilling Permit and Examination</b>		
Water Supply Well / each	175.00	
Monitoring Well		
1 to 3 / per application	295.00	
More than 3 / per each additional well	+50.00	
<b>Well Inspection, per well site</b>		
Well Abandonment	61.00	464
Well Destruction	224.00	464
Monitoring Well Destruction	172.00	
Well Destruction Inspection Reschedule (when not ready on inspection day)	46.00	
Underground Utility Remark Fee (per call back)	128.00	464

\* This fee to sunset as of January 1, 2013 for customers on a metered rate

\*\* Rates shall be adjusted annually by staff during the budget process to reflect the rates in effect as per Res. No. 2007-79

**CITY OF FRESNO  
MASTER FEE SCHEDULE**

**PUBLIC UTILITIES DEPARTMENT**

**WATER RATES\*\***

<b><u>Fee Description &amp; Unit/Time ***</u></b>	<b><u>Current</u></b>	<b><u>Amnd</u></b>
<b>Fire Hydrant</b> , on private property (per month)	23.94	Amend Effective 9/1/2008
<b>Fire Protection Automatic Sprinkler Service</b>		
4-inch diameter or less (per month)	23.94	
6-inch diameter or larger (diameter inch per month)	5.99	
<b>Irrigation of City-Owned Property, Not Metered</b>		
100 square feet	0.24	
<b>Water Treatment Charge, Fluoridation</b>		
Per month	4.52	
<b>Penalties</b>		464
Fire hydrant, unauthorized use / first violation	500.00	
Each violation after first violation	1,000.00	
Fire hydrant damage repair fee		464
Excavation not required	300.00	
Excavation required	100%	
Delinquent notice		
Sewer connection, deferred payment plan, 60 days delinquent	2.00 + accumulated interest & principal installment	
Returning travel meter after permit expiration date per day	10.00	
Conditions of service work (related to Water Wastage Services, FMC 14-119(d))		
First incident (deferred until fourth incident)*	45.00	
Second incident (deferred if conservation class attended)*	45.00	
Third incident (plus fee deferred from second incident if a water conservation class was attended)*	45.00	
Fourth incident (plus fee deferred for first incident)*	45.00	
Each incident after four	45.00	

\* Within a two-year period.

\*\* Rates shall be adjusted annually by staff during the budget process to reflect the rates in effect as per Res. No. 2007-79

\*\*\* Rates are effective 9/1/08

**CITY OF FRESNO  
MASTER FEE SCHEDULE**

**PUBLIC UTILITIES DEPARTMENT**

**WATER RATES\*\***

<b><u>Fee Description &amp; Unit/Time</u></b>	<b><u>Current</u></b>	<b><u>Amnd</u></b>
<b>Penalties (continued)</b>		
Illegal connection / per violation (See Service Work for disconnection, damage, and reinstallation of service after first incident.)	45.00	
Delinquent notice		
Utility billings / per billing	3.00	
if balance > \$200.00	+2%	
Additional copies / each	3.00	
Notification to discontinue services for non-payment of utility charges:		
Customers / per notification	8.00	
Customers with tenants / per tenant notified at a single billing address	2.00	
Minimum	8.00	
Research project fees / per hour	45.00	
Discontinuance of service for non-payment and restoration of service after payment		
Per Discontinuance / Restoration	15.00	
NOTE: The above fees are administered by the Utilities, Billing, and Collection Division of the Department of Administrative Services.		
<b>Service Work</b> (related to remedy of illegal water connection)		464
Blind washer / per service	128.00	
Service disconnection/Restoration / per replacement	192.00	
Padlock on curb stop / per installation	10.00	
Intentional Damage to Meter/Meter Box and/or	100%	
Angle Meter Stop/Curb Stop		
Excavation not required	200.00	
Excavation required	100%	
After-hours turn on service work:		464
Water, Discontinuance & Restoration of service (except emergency) per call	169.00	

\*\* Rates shall be adjusted annually by staff during the budget process to reflect the rates in effect as per  
Res. No. 2007-79

**CITY OF FRESNO  
MASTER FEE SCHEDULE**

**PUBLIC UTILITIES DEPARTMENT**

**WATER RATES\*\***

<b><u>Fee Description &amp; Unit/Time</u></b>	<b><u>Current</u></b>	<b><u>Amnd</u></b>
<b>Water, Temporary Service*</b>		456
Residential (non-metered)		
Each 24 hours	25.00	
Each additional day	+Daily Rate (prorated based on bimonthly rate)	
Fire hydrant permit	25.00	
Fire hydrant wrench deposit	90.00	
3-inch meter, turbine		464
Deposit	496.00	
Deposits required shall be refunded upon the return of all equipment. Deductions shall be made for water service charges due and the cost of repair or replacement of damaged equipment. Any additional replacement costs will be billed to the customer.		
<b>Well Drilling Permit and Examination</b>		
Water Supply Well / each	175.00	
Monitoring Well		
1 to 3 / per application	295.00	
More than 3 / per each additional well	+50.00	
<b>Well Inspection, per well site</b>		
Well Abandonment	61.00	464
Well Destruction	224.00	464
Monitoring Well Destruction	172.00	
Well Destruction Inspection Reschedule (when not ready on inspection day)	46.00	
Underground Utility Remark Fee (per call back)	128.00	464

\*\* Rates shall be adjusted annually by staff during the budget process to reflect the rates in effect as per Res. No. 2007-79

## **Appendix F: Utility Advisory Committee Final Report**

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Utility Advisory Committee Final Report and Recommendation to the Mayor, City Council and City Manager dated March 31, 2011

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## UTILITY ADVISORY COMMITTEE

Laura Whitehouse, Chair  
Gladys Deniz  
Marvin Harms

Carol Maul  
Alec Plumb  
Sharon Schilling

Sarah Velasquez  
Nick Webber  
Nick Yovino

March 31, 2011

To: Mayor Ashley Swearengin  
Fresno City Council  
Mark Scott, City Manager

RE: Utility Advisory Committee Final Report and Recommendation

The Utility Advisory Commission was established in 2006 with the primary goal to recommend a 5-year rate plan for the City of Fresno (City) Water, Wastewater Management and Sewer Maintenance, and Solid Waste and Community Sanitation divisions. A Utility Advisory Committee (UAC) was formed in 2007 and tasked with providing ongoing review of the Department of Public Utilities (DPU) and its needs, and on any anticipated changes in rates. The current 2010-2011 session of the UAC was reestablished in October 2009 and was tasked with determining a 5-year plan for fiscal years 2012 – 2016 while taking into account the critical importance of recommending a sound financial plan that protects both the integrity of the utility system and the rate payers.

This letter is written to introduce the UAC findings and recommendations with respect to the City's need for adjustments to utility rates. The UAC focused on the mission of providing a fiscally sound plan that was within the Council Resolution's guidelines and considered all critical issues facing both the department's obligation to deliver essential services and the challenges of the current economic conditions. Following 12 months of diligent study of materials provided by City staff and independent consultants, the UAC agreed on the following rate adjustment recommendations. The chart represents a complete overview of all divisions for the next 5-years:

Utility Bill for all Services	Current Rates 2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	5-Year Average
Typical Monthly Single Family Residential Utility Bill*	\$ 84.78	\$ 89.04	\$ 93.55	\$ 95.09	\$ 96.73	\$ 98.50	
Average Change per Month		\$ 4.26	\$4.51	\$ 1.54	\$ 1.64	\$ 1.77	\$2.74
% Change		5.0%	5.1%	1.6%	1.7%	1.8%	
						<b>5-Year Avg. =</b>	<b>3.1%</b>

\*Assumes flat un-metered 8,000 square foot lot and is comparable to the average metered home

Division	Rate Recommendation
Water	+9% Annual average revenue increase over 5 years
Wastewater Management Division	+2.65% Annual average over 5 years commercial rate +2.5% Annual average over 5 years residential rate
Solid Waste Division	Residential Service: -3% (-15% decrease over 5 years) Commercial Service: - 4% FY12, +2% each year after *Multi-family service:+10.9% FY12, +2% each year after
Community Sanitation	**0% adjustment

\*Represents a Prop 218 required equity adjustment of Commercial/Multi-Family Rates.

\*\* An adjustment to community sanitation rates is not a part of the 218 process. The UAC is therefore not making a recommendation on community sanitation rates.

Reserve Policy Recommendation: The UAC recommends the implementation of explicit reserve policies for Capital, Operating and Replacement Reserves for all divisions. (See Attachment A)

The UAC continues to support the previously recommended reserve policy.

In conclusion, the UAC recommends the City leadership take swift action to adopt the committee's recommendations due to time constraints associated with Proposition 218 requirements. Delaying the implementation date of rate adjustments could cause a loss of necessary revenue and result in additional rate increases. Committee members would like the Mayor, City Council and City Manager to know that the recommendations found in its final report were not arrived at capriciously, but rather, following long and careful consideration of many points of view.

Finally, committee members would like to express sincere gratitude to the City's DPU staff, management, and consultants.

Interested persons can view the UAC Charter; meeting recaps and rate model presentations and other UAC documents at:

<http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/RateCommittee/Default.htm>

Committee Member	Representing	Signature
Alec Plumb	District 1	Alec B. Plumb
Nick Webber	District 2	Nick Webber
Gladys Deniz	District 3	Gladys Deniz
Marvin Harms	District 4	Marvin Harms
Sharon Schilling	District 5	Sharon Schilling
Laura Whitehouse	District 6	Laura Whitehouse
Carol Maul	District 7	Carol Angstrom Maul
Sarah Velasquez	Mayor	S. Velasquez
Nick Yovino	Mayor	Nick Yovino



# Utility Advisory Committee **FINAL REPORT**

FEBRUARY 2011  
SESSION 2010 - 2011

CITY OF FRESNO  
2600 Fresno Street  
Fresno, California



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# 1.Executive Summary

## Section 1.1: Introduction

Fresno is the fifth largest City in California and is expected to reach a population of approximately 790,000 by 2025. Job development, public health, and a robust economy are all heavily dependent on adequate utility infrastructure and efficient, reliable utility service. Sufficient, reliable utility infrastructure and high value utility services are essential to the economic well being of our community and implementation of the City's General Plan.

The City of Fresno's DPU is responsible for the provision of water, wastewater, sewer, solid waste, and community sanitation services for most residential and commercial customers within the Fresno Metropolitan Area, including some county residents within unincorporated areas. DPU comprises separate operating Divisions: Community Sanitation, Water, Solid Waste, Wastewater /Sewer and an Administration Division. Each Division maintains a separate financial fund and a rate structure to meet the revenue needs and financial regulatory requirements of that fund.

The following table provides a summary of historical utility rate changes, an important context in which the committee members considered issues and recommendations.

### Utility Rate Increase % - 1986-2011

Fiscal Year	Community Sanitation	Wastewater / Sewer	Solid Waste	Water	Fiscal Year	Community Sanitation	Wastewater / Sewer	Solid Waste	Water
1986	0%	0%	0%	0%	1999	0%	0%	0%	0%
1987	50%	0%	0%	0%	2000	0%	0%	0%	0%
1988	16%	0%	0%	0%	2001	0%	0%	0%	8%
1989	38%	0%	0%	6%	2002	0%	0%	9%	8%
1990	21%	0%	0%	35%	2003	0%	0%	0%	0%
1991	3%	25%	34%	20%	2004	0%	0%	0%	0%
1992	0%	25%	8%	15%	2005	0%	-10%	0%	-6%
1993	0%	34%	0%	0%	2006	0%	0%	0%	0%
1994	0%	22%	6%	21%	2007	0%	18.9%	17%	18%
1995	0%	15%	0%	-2%	2008	0%	0%	3.4%	18%
1996	10%	14%	0%	0%	2009	0%	18.9%	12%	23%
1997	0%	12%	0%	0%	2010	0%	18.9%	4.4%	0%
1998	0%	0%	0%	0%	2011	0%	3.1%	0%	0%

The Rate Table above shows a series of reactionary rate spikes implemented to address critical weaknesses in public utility infrastructures. In the future, the UAC believes that practical stewardship of utilities should include the implementation of relatively smaller incremental rate adjustments as outlined in their 2011 five-year rate plan.

## **Section 1.2: UAC Mission and Guiding Principles**

The UAC is a fact-finding body whose purpose is to review, analyze, and when appropriate, make recommendations to the Mayor, the City Council, the City Manager, and the DPU regarding various operating, capital, and financial policies of the City's public utilities. The UAC consists of nine members who serve as principle public advisors on utility issues for the City's four public utility divisions. Committee members are appointed by the Mayor (two appointees) and the City Council (one appointee each).

The UAC operates under the guidelines of the City of Fresno Legal Handbook for City of Fresno Boards, Commissions, Committees, and Similar Bodies. The UAC operates in compliance with the Brown Act, a State law which requires local legislative bodies to conduct meetings in open public session and to post meeting agendas in advance. The UAC is responsible for determining how best to accomplish its tasks and expected outcomes. The UAC used the following general guiding principles for making its recommendations:

- The long-term health of all utility funds through the use of sound financial and rate setting policies and practices
- Protection of the community's investment in current infrastructure, through appropriate funding of maintenance
- Adequate funding of future infrastructure for planned growth to support the 2025 General Plan
- A comprehensive capital replacement program for each utility division
- Protection of public health and safety standards
- Preservation of essential service levels in all utilities
- Compliance with Federal and State laws and regulations, to include Proposition 218
- A prudent operating reserve in each utility enterprise
- Satisfaction of bond debt service coverage ratios in order to protect the City's credit rating

## **Section 1.3: UAC Decision Rule**

The UAC strives to seek consensus decision making on all key issues and every effort is made to address all members' concerns. While consensus was the goal of all UAC decisions, consensus was not reached on all issues and voting was used to determine some committee recommendations. Dissenting opinions of UAC members are valued and are included in the full UAC report.

## **Section 1.4: Overall Policy Recommendations**

UAC members have based their recommendations on ratemaking principles that are standard within the utility industry. These principles include:

- The process of allocating costs to conform to "generally accepted" industry rate-setting techniques and "best management" practices.
- The process of setting rates that are stable in their ability to provide adequate revenues to meet the financial, capital, operational, debt, and regulatory requirements of each utility.
- The process of setting rates which are stable from year to year with the goal of avoiding reactionary rate adjustments.



- The UAC continues to support the previously recommended reserve policies for Capital, Operating and Replacement Reserves for all divisions (See Attachment A).
- Projected growth assumptions for customer accounts were conservatively based using a 5-year average of less than 1% account growth per year.

<b>FY12</b>	<b>FY13</b>	<b>FY14</b>	<b>FY15</b>	<b>FY16</b>
0.75%	0.75%	1.00%	1.00%	1.00%

## Section 1.5: Utility Rate Recommendations

DPU staff utilized professional independent utility-rate consultants to develop detailed rate studies and rate models which included multi-year projections of both utility costs and revenue requirements. These rate studies and models were guided by best-management practices within the utility industry and were presented to the UAC for consideration.

UAC members were diligent in their reading of these rate studies and models and made every effort to ground their discussions in fact, rational analysis, and good business practices. These recommendations are the result of many hours of careful analysis, debate, and research by all members of the UAC, including extensive division and facility tours in an effort to equitably represent all rate payers. After lengthy analysis and deliberation, the UAC approved the following 5-year rate plan recommendation, subject to annual review.

Utility Bill for all Services	Current Rates 2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	5-Year Average
Typical Monthly Single Family Residential Utility Bill*	\$ 84.78	\$ 89.04	\$ 93.55	\$ 95.09	\$ 96.73	\$ 98.50	
Average Change per Month		\$ 4.26	\$4.51	\$ 1.54	\$ 1.64	\$ 1.77	\$2.74
% Change		5.0%	5.1%	1.6%	1.7%	1.8%	
						<b>5-Year Avg. =</b>	<b>3.1%</b>

*\*Assumes flat un-metered 8,000 square foot lot and is comparable to the average metered home*

Division	Rate Recommendation
<b>Water</b>	+9% Annual average revenue increase over 5 years
<b>Wastewater Management Division</b>	+2.65% Annual average over 5 years commercial rate +2.5% Annual average over 5 years residential rate
<b>Solid Waste Division</b>	Residential Service: -3% (-15% decrease over 5 years) Commercial Service: - 4% FY12, +2% each year after *Multi-family service:+10.9% FY12, +2% each year after
<b>Community Sanitation</b>	**0% adjustment

*\*Represents a Prop 218 required equity adjustment of Commercial/Multi-Family Rates.*

*\*\* An adjustment to community sanitation rates is not a part of the 218 process. The UAC is therefore not making a recommendation on community sanitation rates.*

## **Section 1.6: Conclusion**

UAC members were diligent in their study and deliberations and made every effort to ground their discussions in fact, rational analysis and good business practices and a heightened sensitivity to the current economic conditions. The recommendations contained in this report build on the efforts of previous UACs, and are the result of many hours of careful analysis, consideration of alternative compromises and ultimately meet the required guiding principles as outlined in the Council Resolution which reestablished the current UAC.

## 2.Introduction and Background

### Section 2.1: Introduction and Background

Fresno is the fifth largest city in California and the thirty-fifth largest in the nation; with a projected growth rate of 1.9% annually. The population of Fresno is expected to be approximately 790,000 by 2025. Accommodating current demand and future growth is a significant challenge for the City and DPU.

DPU is responsible for the provision of water, wastewater, sewer, community sanitation, and solid waste services within the city limits and unincorporated county land within the Fresno Metropolitan Area. The DPU is comprised of the following operating divisions: Community Sanitation, Water, Solid Waste Management, and Wastewater/Sewer Management, in addition to an Administration Division.

Information describing the UAC Mission and Guiding Principles, UAC Decision Rule, and Overall Policy Recommendations can be found in Appendix B.

### Section 2.2: Utility Rate Recommendations

DPU staff worked closely with professional utility rate consultants to develop detailed rate studies and rate models that included multi-year financial projections of relevant costs and the resulting revenue requirements. The utility rate consultants and DPU staff have used a rate setting approach based on industry best management practices.

Utility Bill for all Services	Current Rates 2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	5-Year Average
Typical Monthly Single Family Residential Utility Bill*	\$ 84.78	\$ 89.04	\$ 93.55	\$ 95.09	\$ 96.73	\$ 98.50	
Average Change per Month		\$ 4.26	\$4.51	\$ 1.54	\$ 1.64	\$ 1.77	\$2.74
% Change		5.0%	5.1%	1.6%	1.7%	1.8%	
					5-Year Avg. = 3.1%		

*\*Assumes flat un-metered 8,000 square foot lot and is comparable to the average metered home*

Division	Rate Recommendation
<b>Water</b>	+9% Annual average revenue increase over 5 years
<b>Wastewater Management Division</b>	+2.65% Annual average over 5 years commercial rate +2.5% Annual average over 5 years residential rate
<b>Solid Waste Division</b>	Residential Service: -3% (-15% decrease over 5 years)
	Commercial Service: - 4% FY12, +2% each year after *Multi-family service:+10.9% FY12, +2% each year after
<b>Community Sanitation</b>	**0% adjustment

*\*Represents a Prop 218 required equity adjustment of Commercial/Multi-Family Rates.*

*\*\* An adjustment to community sanitation rates is not a part of the 218 process. The UAC is therefore not making a recommendation on community sanitation rates.*

After lengthy analysis and deliberation the UAC approved the following 5-year rate plan recommendation, subject to annual review.

### **Section 2.3: Conclusion**

UAC members were diligent in their study and deliberations and made every effort to ground their discussions in fact, rational analysis and good business practices and a heightened sensitivity to the current economic conditions.

Public outreach was done to include participation from members of the public during this extensive process. Each UAC meeting was publicly noticed at City Hall as required by the CA Brown Act and all meeting notices and agendas were also posted on the City's Web site and on the National Public Radio community calendar. Additionally, all meeting announcements were submitted to the Fresno Bee for inclusion in their Community Brief Section which provided for public input.

The recommendations contained in this report are the result of many hours of careful analysis, consideration of alternative compromises and ultimately meet the required guiding principles as outlined in the Council Resolution which reestablished the current UAC. The following table provides an overview of the impact on a typical total utility bill.

**Department of Public Utilities**  
Proposed Monthly Single Family Residential Rates  
UAC Recommended Option 1 - Partial Metro Compliant Compromise

		Current Rates	Proposed 5-Year Rate Plan					5-Year
		FY11	FY12	FY13	FY14	FY15	FY16	Annual Avg
<b>UAC Option 1 *</b>								
<b>Water</b>	<b>\$ Rate</b>	\$27.43	\$31.81	\$36.40	\$37.98	\$39.62	\$41.35	
(Flat Un-Metered)	\$ Increase		\$4.38	\$4.59	\$1.58	\$1.64	\$1.73	\$2.78
Using 8,000 sq ft lot size	% Increase		16.0%	14.4%	4.3%	4.3%	4.4%	
<b>Wastewater/Sewer</b>								
	<b>\$ Rate</b>	\$25.75	\$26.39	\$27.05	\$27.73	\$28.42	\$29.13	
	\$ Increase		\$0.64	\$0.66	\$0.68	\$0.69	\$0.71	\$0.68
	% Increase		2.5%	2.5%	2.5%	2.5%	2.5%	
<b>Solid Waste</b>								
	<b>\$ Rate</b>	\$25.37	\$24.61	\$23.87	\$23.15	\$22.46	\$21.79	
	\$ Decrease		-\$0.76	-\$0.74	-\$0.72	-\$0.69	-\$0.67	-\$0.72
	% Decrease		-3.0%	-3.0%	-3.0%	-3.0%	-3.0%	
<b>Community Sanitation</b>								
	<b>\$ Rate</b>	\$6.23	\$6.23	\$6.23	\$6.23	\$6.23	\$6.23	
	\$ Decrease		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	% Decrease		0.0%	0.0%	0.0%	0.0%	0.0%	
<b>Typical Monthly Residential Utility E</b>		<b>\$84.78</b>	<b>\$89.04</b>	<b>\$93.55</b>	<b>\$95.09</b>	<b>\$96.73</b>	<b>\$98.50</b>	
	\$ Change per month		\$4.26	\$4.51	\$1.54	\$1.64	\$1.77	\$2.74
	% Change		5.0%	5.1%	1.6%	1.7%	1.8%	
<b>5-Year Annual Avg</b>								<b>3.1%</b>

## 3.Division Recommendations

### Section 3.1: Water

After review and in-depth discussion of several options, the UAC voted to recommend a rate plan (“Option 1”) which moves the Division toward substantial compliance with the Metro Plan and the Urban Water Management Plan. This will mean an average overall revenue increase for the Water Division of 9% per year, providing for additional surface water treatment and distribution infrastructure to reduce the reliance on groundwater, as well as providing for a proactive city-wide pipeline replacement program to deal with the aging distribution system.

Water	Current Budget 2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
<b>Overall Revenue Increase %</b>		9%	9%	9%	9%	9%
<b>Residential Rate Increase %</b>		16.0%	14.4%	4.3%	4.3%	4.4%
<b>Monthly Single Family Charge*</b>	\$27.43	\$31.81	\$36.40	\$37.98	\$39.62	\$41.35
<b>Monthly Increase \$</b>		\$4.38	\$4.59	\$1.58	\$1.64	\$1.73

*\*Assumes flat un-metered 8,000 square foot lot and is comparable to the average metered home*

In addition, this rate recommendation provides for the following:

- Reduces the continued negative impact on the groundwater table;
- Provides incentive for conservation through cultural landscaping and irrigation technology improvements;
- Reduces power and energy costs for the pumping of ground water;
- Begins a process of repairing and replacing our water distribution infrastructure, especially in areas with aging pipelines;
- Mitigates the threat of loss of ground water production in Southeast Fresno through implementation of Maximum Contaminant Levels (MCL) for TCP and loss of up to 31 wells by providing an alternative water source with surface water;
- Reduces overdrafting and allows the City to get on track to comply with Metro Plan goals by 2025; This plan will move DPU toward qualification for more favorable interest rates and government grant programs.

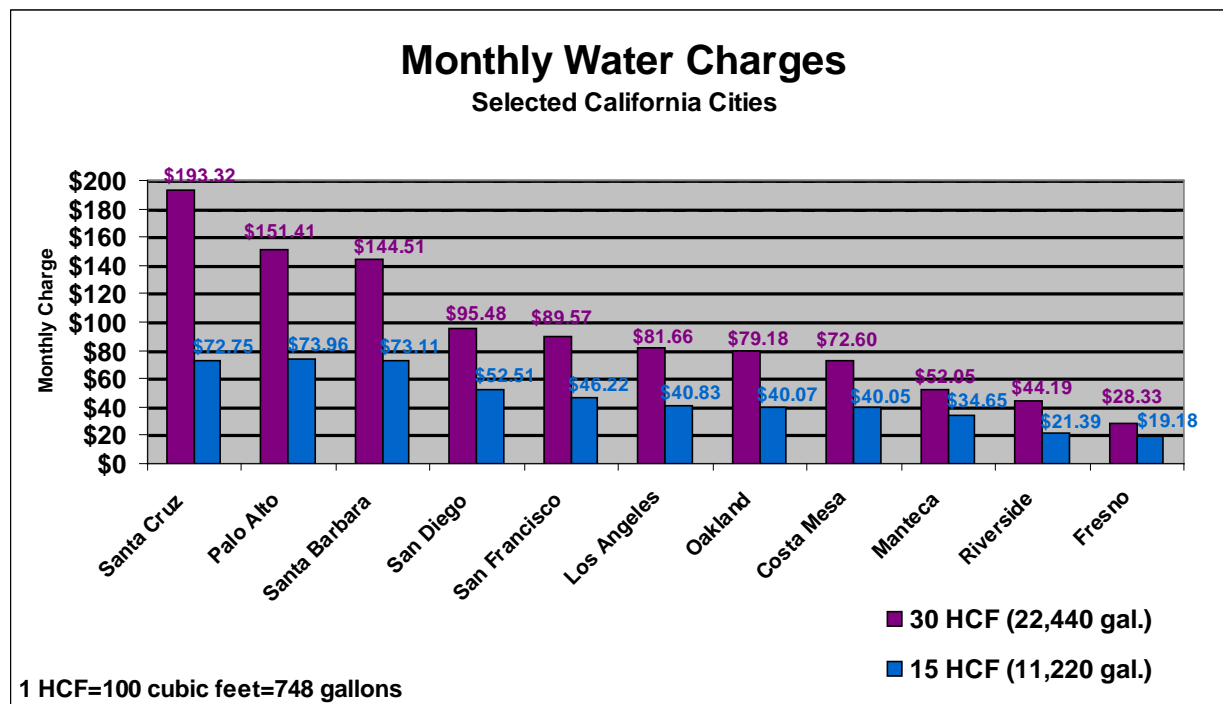
The responsibility for infrastructure maintenance is a huge cost of the Water Division's operations and largely goes unaddressed. Pipelines that are hidden and out of sight make a hard sell when it comes to allocating funds; however, with over 30% of our 1,700 miles of water delivery infrastructure exceeding 50 years in age, it would be irresponsible not to allocate funds and begin a process of replacing the oldest structures which have reached or exceeded their lifetime expectancy.

One other option the UAC considered ("Option 2") did not address the need for proactive infrastructure replacement, leaving the Division open to increasing risk of potential catastrophic failure, nor does it address the continued overdrafting of groundwater and the potential loss of 31 wells due to TCP contaminants. The committee agreed that this would be a shortsighted and irresponsible approach.

Another option ("Option 3") best addresses most of the needs, would allow us to come into full compliance with the Metro Plan, and would bring our rates up to a level that would make Fresno eligible for state grants and zero interest loan programs, but was deemed to be cost prohibitive. Although it would only result in an average annual utility bill increase of 7.8% a year for the typical Fresno household, it also meant an average annual increase of 19.6% for the water portion of the bill. In these difficult economic times, it was agreed that this approach although prudent may not provide for the best timing.

<b>WATER FUND RATE INCREASE SCENARIOS</b> <b>OVERALL REVENUE INCREASES FY12 – FY16</b> Represents the typical single family home						
	<b>FY12</b>	<b>FY13</b>	<b>FY14</b>	<b>FY15</b>	<b>FY16</b>	<b>Average</b>
<b>Option 1</b> – Metro Plan w/\$8M Annual Pipeline Replacement	15%	15%	5%	5%	5%	9%
<b>Option 2</b> – Current Budget, No Metro Plan	2%	2%	2%	2%	2%	2%
<b>Option 3</b> – Metro Plan w/\$19M Avg Annual Pipeline Replacement	23%	23%	23%	10%	3%	16%

The UAC, therefore, voted for Option 1 as a responsible and equitable compromise. Additional insight about how the City of Fresno water rates compare to other California cities was also considered by the UAC. A comparison of monthly water charges is illustrated in the graph below.



Source: Data provided by the AWWA 2008 Rate Survey Analysis

#### Water Rate Dissent – Provided by a Single UAC Member as a Minority Opinion

I do not agree with the UAC decision to increase rates by 9% in 2011-12, by 9% in 2012-13, by 9% in 2013-14, by 9% in 2014-15, and by 9% in 2015-16. These increases appear to be fueled by an aggressive Capital Improvements Program (CIP) which I believe needs to be scaled back.

While I realize that the Water Division has some major economic challenges in planning future CIP and I believe that a rate increase is needed, I also believe that the Division must be prudent and selective with their planning and reduce their CIP to the minimum necessary. There are several points that lead me to this conclusion:

- While government water conservation standards must be the basis for sound water policy goals, I believe that Fresno is moving in that direction through the conversion to metered water usage and later, hopefully, to a tiered conservation rate system. This process will reduce water use and move Fresno towards its conservation goals. Also, while I agree that overdrafting of groundwater is a critically important problem, it too will be reduced through the combined efforts of the Wastewater Division (and their recycled water program) and the Water Division's transition to water meters and tiered conservation rates. Since water conservation efforts are shared between these two divisions, I believe additional CIP water conservation efforts can be planned within a more modest budget at this time.
- Finally this decision to raise rates is based partially upon the argument that these rate increases will bring Fresno's water rates to only 70% of the 2009 state average thereby exposing us to loss of 0% loans and free state money. The large proposed rate increases are



not the only choice before us. A more modest rate increase will also begin the *process* of moving Fresno towards the state average and it is the *process* that is critical.

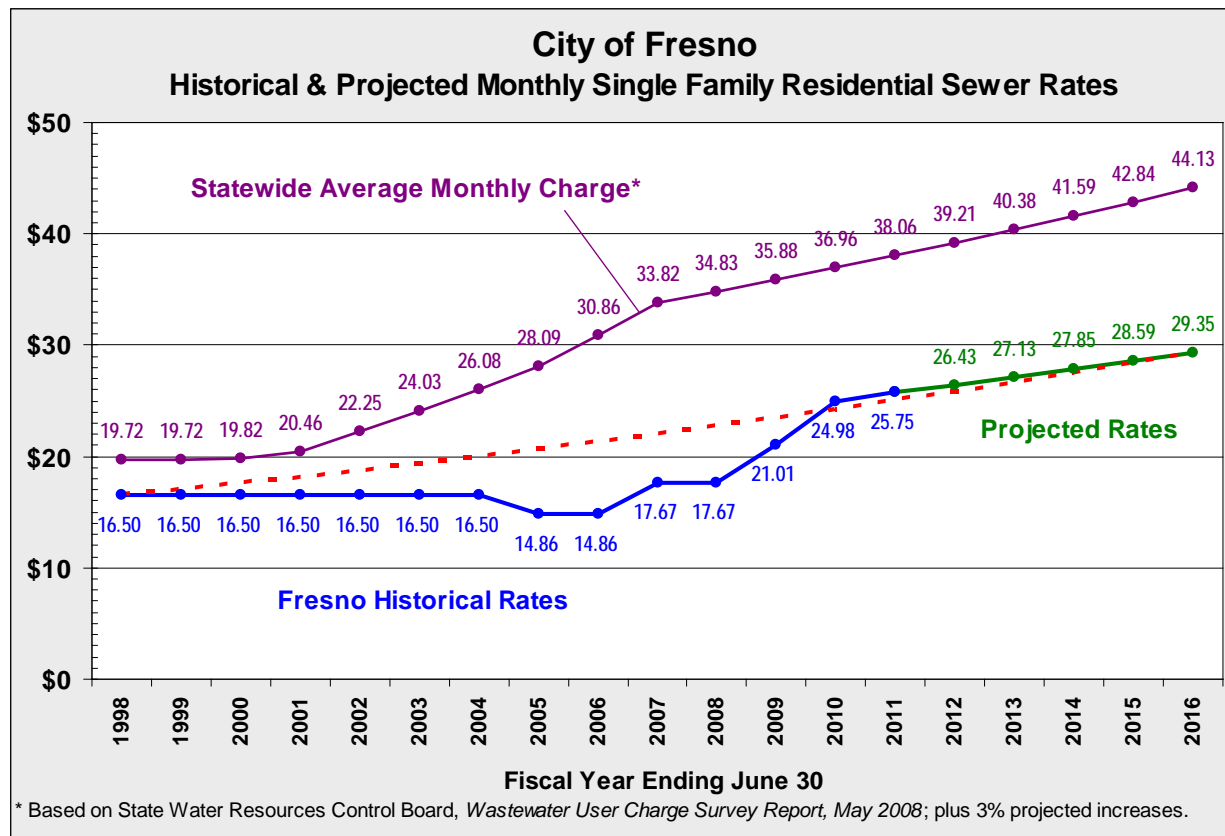
Let me say clearly that over the last few years I have watched our Water Division in action and they continually impress me with their dedication to serving Fresno's citizens and their ability to do more with less. I have nothing but respect for them as they are hard-working and absolutely dedicated public employees, but raising rates by this much is just plain inflationary at a time when many rate payers are struggling to make ends meet. I believe a more modest rate increase and an abridged CIP is the right choice for today.

## Section 4.2: Wastewater

After review and in-depth discussion of several scenarios, the UAC voted to recommend an overall Wastewater Division rate increase of 2.65% for the next five fiscal years. This rate increase includes beginning recycled water operations during the 2014/15 fiscal year. Greater detail is outlined in the table below.

Wastewater/Sewer	Current Budget 2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Overall Rate Increase %	3.1%	2.65%	2.65%	2.65%	2.65%	2.65%
Residential Rate Increase %		2.50%	2.50%	2.50%	2.50%	2.50%
Monthly Single Family Charge	\$25.75	\$26.39	\$27.05	\$27.73	\$28.42	\$29.13
Monthly Increase \$		\$0.64	\$0.66	\$0.68	\$0.69	\$0.71

The following chart shows historical and projected single family residential sewer rates. With the proposed rate increases, single family rates will have increased by an average of 3.25% per year since 1998 accounting for a long period of no rate adjustments coupled with the increases implemented over the past 5 years. As shown on the chart, the City's single family rates are projected to remain substantially below the statewide average.



The Major Assumptions Used in Rate Model are outlined below:

### Wastewater/Sewer Capital Program

- **Recycled Water - \$163.0 million, in Fiscal Years 2012 through 2014**
  - The Draft Urban Water Management Plan identified the City's need to facilitate use of at least 25,000 acre feet per year of recycled water, by 2025 to offset existing potable water use in order to help meet future water supply needs for the Fresno Metropolitan area. Capital projects will provide the recycled water infrastructure including tertiary treatment, disinfection, and other advanced treatment of wastewater in order to provide the recycled water to potential recycled water customers. **See Discussion of Recycled Water Program below.**
- **Collection System, Treatment, and Reclamation Facilities' Rehabilitation - \$63.0 million, in Fiscal Years 2012 through 2016**
  - Capital projects will maintain and repair infrastructure to ensure public health and safety, including rehabilitation of structurally deteriorating sewer trunklines and failing treatment structures and equipment.
- **Regulatory Requirements - \$56.5 million, in Fiscal Years 2012 through 2016**
  - Capital projects will assist in ensuring compliance with regulatory requirements and agencies including the treatment facilities' Waste Discharge Requirements and National Pollutant Discharge Elimination System Permit, the collection system's

California Statewide General Waste Discharge Requirements for Collection Systems, and the San Joaquin Valley Air Pollution Control District.

- **Infrastructure for Growth - \$24.7 million, in Fiscal Years 2013 through 2016**
  - Capital projects will provide for additional collection and treatment capacity to support the City's General Plan.
- **Total Wastewater/Sewer Capital - \$311.4 million over next 5 fiscal years, 2012 through 2016**

## **Wastewater Management Operations & Maintenance**

---

- **Expenses – Projections**
  - Between FY 2012 – FY 2016, O&M for collection and treatment combined increases by approximately \$8.0 million or \$1.6 million per year
  - 3% cost inflation per year
  - Expenses increased in FY 2013 by \$0.5 million to include staffing and other related costs for operating dewatering facility to be completed by FY 2013
  - Expenses increased in FY 2015 by \$1.9 million to include staffing and other related costs for recycled water operations
  - Staffing levels increased between FY 2013 and FY 2015 by \$0.5 million to meet Waste Discharge Requirements regulations for collection system and recommendation from Master Plan study for wastewater facility operations
  - Annual Debt Service – FY 2012 \$26.2 million, FY 2013 \$32.7 million, FY 2014 \$33.7 million, FY 2015 \$33.7 million, FY 2016 \$33.7 million
  - Issuance of wastewater revenue bonds of \$200.8 million in FY 2012 assuming terms of 30-years at average annual interest rate of 5.25%
- **Revenue – Projections**
  - 0.75% customer growth per year
  - 3% annual escalation of Wastewater Facilities Charge (Capital Facilities Expansion Fee) pending completion of consultant review of connection fees in FY 2012
  - Transition to metered billing for Water Division, and billing in arrears, of 40% of residential customers in FY 2011, 40% in FY 2012 and remaining 20% in FY 2013 resulting in approximately \$2.8 million in lost revenue
  - Revenues increased beginning in FY 2015 initially at \$500,000 per year and escalating at an annual rate of 3% to account for recycled water service charges (This revenue will increase as additional customers are brought online)

## **Recycled Water**

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A major focus of the capital improvement program (CIP) for the next 5 fiscal years is recycled water infrastructure. This includes providing tertiary treatment, disinfection, and other advanced treatment of wastewater in order to provide the recycled water to potential recycled water customers. As noted under the Major Assumptions Section above, of the \$311.4 million CIP over next 5 fiscal years, 2012 through 2016, \$163.0 million is associated with recycled water. While the UAC supports a rate structure including this project, some members of the UAC and members of the public have expressed concerns about spending this money given present economic conditions. If the City Council decides not to fund this project, there is a significant risk that the California

Regional Water Quality Control Board may deny plant expansions requested by the City in the future.

**Benefits of Recycled Water:** Recycled Water provides a reliable, drought-proof, locally-controlled water supply with tremendous environmental benefits. Recycled water supports the sustainable use of groundwater and/or surface water by substituting potable (drinking) water used for non-potable activities and by creating a new and reliable water supply while not compromising public health.

California is faced with increased water demands due to population growth, drought conditions and groundwater overdraft. As water demands and environmental needs grow, water recycling plays a greater role in the overall water supply. Water conservation and recycled water programs complement each other by providing and maintaining the level of service expected by the community. Recycled water allows sustainable water conservation by substituting potable uses with available alternative sources.

**Recycled water is reliable:** Even in times of drought, when restrictions are placed on the use of potable water for non-essential uses like landscape irrigation, recycled water is readily available. During periods of mandatory cutbacks and water rationing, recycled water would be available to protect major investments the community has made in landscaping such as parks, schools and golf courses.

#### **Regulatory Mandates for Recycled Water:**

*“Recycled water means water which as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource.”* (California Water Code 13050).

The California Water Code declares that using potable domestic water for non-potable use is a waste or an unreasonable use of water if recycled water is available. In addition, it states that the use of recycled water constitutes the development of “new basic water supplies” and encourages the development of facilities to recycle water. The Legislature also supports the design and construction of water delivery systems on private property that deliver water and nonpotable water uses in separate distribution systems. (California Water Codes 13510, 13511, 13550, 13555.3).

*Senate Bill x7-7* was enacted in November 2009 requiring all water suppliers to increase water use efficiency in urban and agricultural sectors. For the urban sector, the legislation sets an overall goal of reducing per capita urban water use by 20% by December 31, 2020, reducing per capita water use by at least 10% by December 31, 2015. Failure to meet the 2015 goal will result in the inability to obtain state grants or loans for water projects.

*The State Water Resources Control Board*, through the *Recycled Water Policy* adopted the goal for California to increase the use of recycled water over the 2002 levels by at least 1 million

acre feet per year (afy) or 325,839 MGY or 892.7 MGD by 2020 and at least 2 million afy (651,678 MGY or 1,785 MGD) by 2030. The goal includes the 20% increase of water conservation by 2020 and the substitution of as much recycled water for potable water as possible by 2030.

*The State Water Board* mandates, and will enforce, the increase of recycled water in California by 200,000 afy (65,168 MGY or 178.5 MGD) by 2020 and by an additional 300,000 afy (97,751 MGY or 267.8 MGD) by 2030. These mandates will be evaluated biennially and will review and revise as necessary the implementation provisions of this Policy in 2012 and 2016.

*The California Regional Water Quality Control Board, Central Valley Region* (Regional Board) adopted *Waste Discharge Requirements (WDR) Order No. 5-01-254* for the Fresno-Clovis Regional Wastewater Reclamation Facility (RWRF). The WDR sets forth discharge prohibitions, limitations and specifications for the operation of the RWRF. In addition it lists a series of requirements for projects or studies to be developed and implemented. Provision H. 15 of the WDR requires the increase of the RWRF effluent reuse operation to recycle an additional 11,200 afy (3,649 MGY or 9.998 MGD). It is likely that future revisions of the WDR will focus on the need to increase recycled water use and deliveries to meet the State goals and mandates. This will be achieved by additional treatment (at a tertiary level) that will expand the recycled water capabilities beyond current uses.

### **Opportunities**

Much more recycled water is produced in California than is beneficially used. This water is either put back into the ground or sent to rivers, creeks or other bodies of water. Recycled water could be applied to beneficial uses, displacing use of limited potable water supplies for non-potable purposes.

“Beneficially used” means productively used to serve a purpose that would otherwise need to be met by other sources of water. Non-potable use of recycled water is a widely accepted practice that will continue to grow. Uses that support recycled water are irrigation projects for parks, greenbelts, playgrounds, athletic fields, school yards, golf courses, cemeteries, freeways, highways, street landscaping, nurseries, industrial uses, and certain residential uses such as toilet fixtures and landscaping.

While recycled water is a sustainable approach to conserve potable water resources, the treatment and distribution can initially be expensive compared to other alternatives. In addition agencies must implement public outreach to address public perception regarding health and safety concerns in the use of recycled water. However, the investment brings maximum returns as potable water will be conserved for human consumption while recycled water can be beneficially used for non-potable projects.

## **Private Sewer Lateral Recap**

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The issue of private sewer laterals was a topic of discussion by the UAC at the onset of their session. The UAC had been asked by the Mayor's office to address concerns raised about private sewer laterals by some in the community. To allow for community input on the discussion as requested, the UAC established a subcommittee to study the issue and return with a recommendation. That Subcommittee report and recommendations are included in this report as a Appendix C.

## **Wastewater Rate Dissent – Provided by a Single UAC Member as a Minority Opinion**

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I do believe that the wastewater infrastructure must be enlarged to accommodate future population growth and I do believe a modest increase in rates is justified, but I do not believe that the Capital Improvement Plans currently scheduled by the Wastewater Division have been looked at closely enough. Included in these plans is the expenditure of \$173 million to build out a recycled water distribution system to be completed by the year 2014. This system is being planned in response to a requirement that the City achieve a 20% reduction in water use by the year 2020.

The responsibility for this conservation goal does not need to be attained solely through a recycled water program facilitated by the Wastewater Division. It is true that the Wastewater Division must help make possible a way to achieve a portion of this conservation goal, but this responsibility must be and is being shared with the Water Division. The Water Division will assist with water conservation by continuing the installation of water meters and through the conversion to tiered water rates.

I have the utmost respect for the Wastewater Enterprise and I truly admire the public employees and administrators who work diligently on a daily basis to deliver 'first-class' service to Fresno's rate payers. Fresno is lucky to have a division displaying the work ethic I have seen. However, I believe a more modest CIP and an extended timetable for development of a Recycled Water Distribution System is a more prudent approach to meeting water conservation goals in these tough economic times.

## **Section 3.3: Solid Waste**

The Solid Waste Division of the DPU has continued to provide quality service to the citizens of Fresno and has met its obligations even under significant unanticipated cost pressures. By the end of FY 2010, the Solid Waste Division was on solid financial footing due to a combination of sound management, program reprioritization, and receipt of proceeds from a legal settlement. This allowed the UAC to consider a 5-year reduction in the City's residential solid waste rate model.

In discussing a reduction in residential rates, the UAC inquired if such an action would lead to a spike in future 5-year rate plans. After reviewing the Solid Waste Division's financial position, the UAC concluded that rate decreases for the next five years would not cause rate spikes in the future. This was also based on the assumption that the current contracts with the Division's vendors would be maintained and consistent. The UAC also concluded that decreasing residential

rates would not disrupt the Division's goal of maintaining adequate reserves and a 45-60 day operating reserves for unforeseen circumstances.

The Division received the National Honor of the Driver of the Year for 2008 and 2010. They also were honored as the Top in the Nation in 2009 for both categories of "Best for Recycling" and "Best Recycling Practices".

Committee members have been diligent in their study and deliberations and have made every effort to ground their discussions in fact, rational analysis and good business practices. As community residents and ratepayers, the committee agreed to consider Fresno's health and economic well being and the maintenance of the division's infrastructure while at the same time, striving to obtain the best value possible for both the residential and commercial ratepayers.

### Residential Solid Waste Rate Recommendation

The UAC recommends a negative 3% adjustment to residential solid waste rates over Fiscal Years 2012 through 2016. Such an adjustment would drop the average residential rate by 76 cents in 2011 to a \$24.61 monthly rate. Through continued -3% adjustments annually, the average residential rate would drop to \$21.79 by fiscal year 2016. The UAC concludes that such a reduction in residential rates is fiscally prudent. The proposed rate structure will adequately fund the Division's Operation and Maintenance expenses, operation and maintenance reserves, 45-60 day emergency reserves, and capital reserves for fiscal years 2012 through 2016. A reduction of rates will in no way lead to a negative fund balance at the end of fiscal year 2016.

The UAC did not study a rate increase for Community Sanitation that does not fall under the Prop 218 rules and recommends that the Community Sanitation rate remain the current flat charge of \$6.23 per month.

Residential Solid Waste	Current Rate 2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Residential Rate Adjustment %		-3%	-3%	-3%	-3%	-3%
Monthly Single Family Charge*	\$25.37	\$24.61	\$23.87	\$23.15	\$22.46	\$21.79
Monthly Increase \$		(0.76)	(0.74)	(0.72)	(0.69)	(0.67)

The UAC unanimously recommends that the City of Fresno adopt an annual negative 3% adjustment of the residential solid waste rates for Fiscal Years 2012 through 2016.

*In order to comply with Proposition 218, the UAC recommends merging Commercial and Multi-Family rates to achieve an equitable rate structure.*

<b>Commercial Solid Waste</b>	<b>Current Rate 2010/11</b>	<b>2011/12</b>	<b>2012/13</b>	<b>2013/14</b>	<b>2014/15</b>	<b>2015/16</b>
<b>Commercial Rate Adjustment %</b>		-3.98%	2%	2%	2%	2%
<b>Commercial Rate Charge \$</b>	\$71.72	\$68.87	\$70.25	\$71.65	\$73.09	\$74.55
<b>Annual Commercial Rate Change \$ (1 CY Bin 2x/wk)</b>		\$(2.85)	\$1.38	\$1.40	\$1.44	\$1.46
<b>Multi-Family Rate Adjustment %</b>		10.91%	2%	2%	2%	2%
<b>Multi-Family Rate Charge \$</b>	\$62.26	\$68.87	\$70.25	\$71.65	\$73.09	\$74.55
<b>Annual Multi-Family Rate Change \$ (1 CY Bin 2x/wk)</b>		\$6.61	\$1.38	\$1.40	\$1.44	\$1.46

### **Commercial Solid Waste Rate Recommendation**

The rates recommended for commercial solid waste are broken down into two sets of rates: multi-family residential and commercial. The proposal is structured as such to merge the two rate structures into one.

Multi-family solid waste removal is a function traditionally managed by the commercial side of the Solid Waste Division. In recent years, commercial/business rate payers and multi-family-residential rate payers received separate solid waste removal services. In other words, business rate payers and multi-family residential rate payers had their own separate trucks, routes, pick-up schedules, etc. The result of this organizational structure led to business rate payers paying for services at a higher rate, and in fact, subsidizing the multi-family residential rate payers. In addition, in order to improve efficiency, the routes for commercial and multi-family rate payers have been merged. According to Proposition 218, both business rate payers and multi-family residential rate payers must be charged the same rate for the same service. As a result, the traditional structure of segregating business rates from multi-family rates is out of legal compliance. Therefore, the UAC recommends that the Solid Waste Division combine the business and multi-family solid waste removal rates in a manner that is equitable and efficient for all rate payers, and so that the Division is compliant with Proposition 218.

In order to remedy the inequities caused by the prior segregation of rates and to make the rates Proposition 218 compliant, the UAC recommends an initial positive rate adjustment of multi-family residential rates of 10.9% in fiscal year 2012 which equates to a \$68.87 monthly rate. Following the 2012 adjustment, the UAC recommends an annual positive adjustment of 2% for fiscal years 2013 through 2016. By 2016, the average monthly rate for multi-family residential would be \$74.55. The 2% adjustment for fiscal years 2013 through 2016 would mirror the rates for business rate payers during the same time period, thus bringing the program into compliance with Proposition 218. The UAC stresses its reluctance to adjust rates by 10.9% for multi-family residences in 2012, but



concludes that Prop 218 requires this increase in order to remedy the inequities created by prior rates charged to business rate payers.

For business rate payers, the UAC recommends a decrease of 3.98% in FY 12 and an annual increase of not more than 2% for fiscal years 2013-2016. This rate adjustment would lead to a monthly average rate of \$68.87 in 2012 and \$74.55 in 2016, thus achieving parity with the multi-family residential rates referenced above. In proposing this rate model, the UAC concludes that the Solid Waste Division's commercial solid waste funds will be maintained at reasonable and prudent levels to assure the division's goals of maintaining adequate reserves and a 45-60 day operating reserve for emergencies and unforeseen circumstances, as well as capital improvement programs and continued operation and maintenance budgets.

The Solid Waste Division has worked closely with R3 Consulting Group, professional rate consultants, to develop rate studies and models to include multi-year financial projections of costs and revenue requirements.

The recommended rate adjustments are based on revenue requirements for meeting the following elements:

- Operation and maintenance requirements
- Capital expenditure
- Debt service payments
- Specified reserves

The UAC was also presented with the option of 0% adjustments in Residential Solid Waste Service over the course of fiscal years 2012-2016. This would keep rates at current levels and not permit residential rate payers to enjoy the benefit of afore referenced reductions. The UAC concluded that the Solid Waste Division's current residential funds are beyond prudent and reasonable, and that a reduction in residential rates is reasonable and equitable. The UAC also concludes that maintaining a 0% adjustment of rates would invariably lead to increased fund balances that are unnecessary and would be difficult for the City to justify in the future.

## **4. Committee Rate Evaluation Process**

### **Section 4.1: Structure of Meetings**

The UAC met once a month from January 2010 through February 2011 with the exception of June 2010 when staff was working on budget issues. An additional meeting was held in October 2010 to allow more discussion time on the water rate model. Laura Whitehouse served as the UAC chairperson and Marvin Harms as interim chairperson in her absence.

### **Section 4.2: Typical Meeting Agenda**

Each UAC meeting was dedicated to briefing and analyzing the rate models proposed for each division, as well as other matters of relevance to that discussion. All deliberations were guided by the UAC Charter and the long-term interests of the Fresno community. Members of the UAC addressed related policy issues underlying development of rate recommendations.

### **Section 4.3: Committee Decision Rule**

A decision-making meeting was held for each Division with revised rate alternatives for UAC consideration and recommendation. The UAC formulated its recommendations supported by as many members as possible through a consensus-building process. Consistent with the UAC Charter, where consensus was not reached, the recommendation was reached by majority vote. In all cases, the recommendation was supported by consensus or by overwhelming majority. Dissenting members were encouraged to submit minority opinions.

The UAC was divided into three working groups to begin writing sections of the Division recommendations once the recommendation was determined by the full group. The working groups met outside of the UAC meetings and submitted their draft text to the full group for approval.

## 5. Conclusion

UAC members were diligent in their study and deliberations and made every effort to ground their discussions in fact, rational analysis and good business practices. The recommendations contained in this report are the result of many hours of careful analysis over 14 months.

Utility Bill for all Services	Current Rates 2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	5-Year Avg
Typical Monthly Single Family Residential Utility Bill*	\$ 84.78	\$ 89.04	\$ 93.55	\$ 95.09	\$ 96.73	\$ 98.50	
Average Change per Month		\$ 4.26	\$4.51	\$ 1.54	\$ 1.64	\$ 1.77	\$2.74
% Change		5.0%	5.1%	1.6%	1.7%	1.8%	
						<b>5-Year Avg. =</b>	<b>3.1%</b>

*\*Assumes flat un-metered 8,000 square foot lot and is comparable to the average metered home*

Division	Rate Recommendation
<b>Water</b>	+9% Annual average revenue increase over 5 years
<b>Wastewater Management Division</b>	+2.65% Annual average over 5 years commercial rate +2.5% Annual average over 5 years residential rate
<b>Solid Waste Division</b>	Residential Service: -3% (-15% decrease over 5 years) Commercial Service: - 4% FY12, +2% each year after *Multi-family service:+10.9% FY12, +2% each year after
<b>Community Sanitation</b>	**0% adjustment

*\*Represents a Prop 218 required equity adjustment of Commercial/Multi-Family Rates.*

*\*\* An adjustment to community sanitation rates is not a part of the 218 process. The UAC is therefore not making a recommendation on community sanitation rates.*

## 6. Next Steps

After the Mayor and City Council have reviewed and considered this 5 year rate plan, the City Council will adopt a series of utility rates. The City Council will then give direction to City Staff to proceed with the Proposition 218 process, which includes a public protest vote and hearing. Starting April 2011 each property owner should be mailed a notice outlining the need for the rate adjustments and notifying them of the opportunity to file a protest and attend a hearing scheduled for June 2011. Upon conclusion of the protest tabulation and the hearing, the City Council will approve rate increases. New rates will begin to go into effect August 2011.

- March 2011: Present UAC Report to Mayor & City Council
- April – May 2011: Conduct Proposition 218 Process, including:
  - 45 day mailing notice
  - Protest hearing
- June 2011: City Council approves new rates
- August – September 2011: Utilities Billing and Collection (UB&C) bills new utility rates

# Appendix A

## **Reserve Policy**

At the request of the UAC, Bartle Wells Associates, who had previously been responsible for preparing the current sewer rate model, was asked to review the Best Practices of other utilities and make recommendations based on our needs for operating, capital and replacement reserves for each of the City's utilities (see attached Public Utilities Reserve Fund Analysis dated April 2009 – Attachment 3).

The UAC agreed that a major component of prudent fiscal policy and rate stabilization includes a provision for (1) a capital reserve fund, (2) an operating reserve fund and (3) machinery and equipment replacement fund. Therefore, the UAC recommends that the City Council adopt or direct staff to formalize the policies and return to City Council for their consideration the following reserve policies for the utilities:

## **Recommended Reserve Policies**

### **1. Capital Reserve Fund**

- a. Sewer Enterprise – Maintain a minimum capital reserve of \$2.4M for emergencies
- b. Water Enterprise – Maintain a minimum capital reserve of \$1.7M for emergencies

### **2. Operating Maintenance Fund**

- a. Sewer Enterprise – Maintain a reserve equal to 45-60 days of operating and maintenance expenses (13% - 17% of O&M)
- b. Water Enterprise – Maintain a reserve equal to 60-70 days of operating and maintenance expenses in calendar year 2009 (17% - 19% of O&M) and 90 days of operating and maintenance expenses by calendar year 2012 to accommodate the full implementation of residential metered billing (25% of O&M).
- c. Solid Waste/Community Sanitation Enterprises – Maintain a reserve equal to 30 days of operating and maintenance expenses (8% of O&M)

### **3. Replacement Fund**

- a. Sewer Enterprise – Maintain a reserve equal to one year of replacement value (\$6M - \$10M or 2%-3% of asset value)
- b. Water Enterprise – Maintain a reserve equal to one year of replacement value (\$6M-\$10M or 2%-3% of asset value).
- c. Solid Waste / Community Sanitation Enterprises – Maintain a reserve equal to one year vehicle/equipment replacement or \$1M

## Appendix B

### Section B.1: UAC Mission and Guiding Principles

The UAC is a fact-finding body whose purpose is to review, analyze, and when appropriate, make recommendations to the Mayor, City Council, City Manager, and the department regarding various operating, capital, and financial policies of the City's public utilities. The UAC is comprised of nine members who serve as principle public advisors on utility issues for the City's five public utilities. Committee members are appointed by the Mayor (two appointees) and the City Council (one appointee each).

The UAC used the following guiding principles for making its recommendations as directed in the October 2009 Council Resolution:

- The long-term health of all utility funds through the use of sound financial and rate setting policies and practices
- Protection of the community's investment in current infrastructure, through appropriate funding of maintenance
- Adequate funding of future infrastructure for planned growth to support the 2025 General Plan
- A comprehensive capital replacement program for each utility division
- Protection of public health and safety standards
- Preservation of essential service levels in all utilities
- Compliance with Federal and State laws and regulations, to include Proposition 218
- A prudent operating reserve in each utility enterprise
- Satisfaction of bond debt service coverage ratios in order to protect the City's credit rating

The UAC operates under the guidelines of the City of Fresno Legal Handbook for City of Fresno Boards, Commissions, Committees, and Similar Bodies. The UAC operates in compliance with the Brown Act, a state law which requires local legislative bodies to conduct meetings in open public session and to post meeting agendas in advance. The UAC is responsible for determining how best to accomplish its tasks and expected outcomes.

The following general principles of collaboration guided the deliberations of the UAC:

- The mission of the UAC will best be achieved by relationships among the UAC members characterized by mutual trust, responsiveness, flexibility, and open communication.
- It is the responsibility of all participants in the project to work toward the common goals of the UAC.
- To that end, UAC members will:
  - Commit to expending the time, energy, and organizational resources necessary to carry out the mission of the UAC.

- Be prepared to listen intently to the concerns of others and identify the interests represented.
- Ask questions and seek clarification to ensure they fully understand others' interest, concerns, and comments.
- Regard disagreements as problems to be solved rather than battles to be won.
- Be prepared to "think outside the box" and develop creative solutions to address the many interests that will be raised throughout the UAC's deliberations.

## **Section B.2: UAC Decision Rule**

The UAC will strive to seek consensus on all key issues. No voting is anticipated. Rather, every effort will be made to address each concern. A consensus-based approach to decision-making does not mean that full support will be required to move forward with recommendations. Every effort will be made to reach consensus, and opposing views will be presented and explained. If the group cannot reach consensus, decisions will be made by majority vote. Minority views will be included in the meeting recap. If desired, UAC members have the opportunity to convey their view on a specific issue or recommendation in the UAC Annual Report.

A majority (51%) of appointed UAC members constitutes a quorum for the transaction of any business except adjournment. Every action taken or decision made by a majority of the members present at a meeting at which a quorum is present is an act of the UAC. A meeting at which a quorum is initially present may continue to transact business, despite the withdrawal of some members, if any action taken or decision made is approved by at least a majority of the required quorum for that meeting. However, items can be tabled to ensure full UAC participation for a decision.

## **Section B.3: Overall Policy Recommendations**

UAC members were encouraged to base their recommendations on ratemaking principles that are standard within the utility industry. These standard principles are found in documents such as the American Water Works Association's manual, Principles of Water Rates, Fees and Charges, and include the following:

- Rates should be set at a level such that they meet the full revenue requirements of the utility.
- The process of allocating costs should conform to "generally accepted" rate setting techniques.
- Rates should be stable in their ability to provide adequate revenue to meet the utility's financial, capital, operational, debt and regulatory requirements.
- Rates should be stable from year to year from the perception of the customer.

Based on these principles the UAC made several policy recommendations regarding operating reserves, and long-term rate setting, and others that are described in further detail within this report.

# Appendix C:

## Section C.1 Subcommittee Report and Recommendations



### DEPARTMENT OF PUBLIC UTILITIES – ADMINISTRATION



May 12, 2010

TO: Utility Advisory Committee (UAC)

THROUGH: Robert Andersen, Assistant Director

BY: Ann D. Kloose, Public Outreach Coordinator/PIO

**SUBJECT: SEWER LATERAL SUBCOMMITTEE RECOMMENDATIONS FOR  
CONSIDERATION BY THE UTILITY ADVISORY COMMITTEE (UAC)**

### EXECUTIVE SUMMARY

A subcommittee to address issues related to sewer laterals in the City of Fresno was established by the UAC on January 13, 2010, at the request of the Mayor who had been approached by the local Faith in Community (FIC) expressing concerns over tree roots invading clay sewer lateral pipes. The UAC subcommittee, Department of Public Utilities (DPU) staff and members of FIC have met on three occasions to review a variety of data and information provided by DPU staff in regard to private sewer lateral issues facing our community. Prior to the subcommittee being established, DPU staff met with FIC on two occasions to hear their concerns. The many issues that were discussed directly related to private sewer lateral issues included: current City of Fresno municipal codes, previous City Council action on the private lateral municipal code section, California state best practices, frequency of city reported sewer lateral problems, information from other cities and options for private maintenance of the sewer laterals.

In order to put the actual scope of the issue into context, the question was asked, "What is the percentage of clay sewer lateral pipes in the City of Fresno and how durable is this material?" Staff conducted detailed and comprehensive research and analysis to answer the question. The answer was 60% of the City's sewer laterals are clay pipe, which strengthens the statement that clay is actually a durable product since less than 1% of homeowners citywide report sanitary sewer overflows (SSO) on an annual basis. This reveals that this issue impacts less than 1% of our customers a year as reported by the homeowners. Research also reveals that a majority of SSOs are due to grease, followed by a combination of grease and roots, and not roots alone. This is also consistent with state findings.

Further staff research also revealed that a majority of cities and agencies do not take maintenance or responsibility for laterals that service individual private property. A study that was conducted by Dudek, a leading California environmental and engineering firm for the Orange County Sewer District, in June 2008 reaffirms this with their research that most cities



maintain that both the sewer lateral and the connection is the sole responsibility of the property owner. It references current state law that does not allow public agencies to be liable or accept responsibility for property they do not own. The study did cite some cases of cities taking maintenance responsibility for lower laterals in public right-of-ways in the event of a collapse or becoming non-serviceable. The cities that provide assistance in lower laterals commonly operate a water system that can easily become compromised by a defect in the sewer laterals or fear exposure to public areas such as beaches or other water ways. The City of Fresno water system does not face this type of threat. It did not appear that cities commonly offer full maintenance and replacement programs for their customers unless the cost was built into their current rate structure and there was a compelling reason. FIC did offer Madera as an example of a city who does maintenance and repair to the lateral. DPU staff researched the terms of Madera's service and it was agreed that Fresno could not offer the same due to legislative requirements and liability exposure. The cities that do assist also require appropriate clean-outs and include funding for the service through their rate structures.

This issue of changing Fresno's policy on private sewer laterals has been taken up by the City Council previously. Currently, Section 9-504(e) of the Fresno Municipal Code (FMC) provides that the sewer lateral is the property of and responsibility of the property owner and maintenance and repair shall not be provided by the City. The last known official action was in 1992 when the idea of shifting responsibility for repair of sewer house branches from the property owner to the sewer fund was considered. DPU staff recommended at that time there be no change to current city municipal code or policy and the concept was rejected. It continues to be the belief of DPU staff that the policies in FMC Section 9-504(e) continue to properly serve the community.

The subcommittee did discuss the idea of changing the current FMC to require the City to be responsible for maintaining, repairing and replacing the lower sewer lateral. The cost of this type of citywide program and the rate adjustment needed to fund a new program were quite high. For instance, to fund a program for our approximately 110,000 customers that would assume 1% lateral defects (1,100) a year throughout the city and a maintenance crew to tend to the private laterals once every three years could require as much as \$4.37 more per month, or, a 17.5% rate increase.

1,100 (replacements) X \$5,000 =	\$5,500,000
Maintenance crew and equipment	<u>\$ 270,000</u>
Annual Program Cost	\$5,770,000 / 110,000 = \$52.45 per household per year

Considering that research shows that less than 1% of city residents report SSOs, it is unlikely that a rate increase to fund this program during the next 5-year rate plan would be successful. Due to the high costs and liability associated with this option, the committee is not making this recommendation at this time and instead looked at alternatives.

#### OPTIONS FOR CONSIDERATION

The following concepts and opportunities were introduced and discussed during the committee meetings. Although a majority of these options would require official direction from the City Manager, and in some cases City Council approval, they are being presented as options for discussion and recommendations in an advisory capacity at the request of the UAC.

Community Development Block Grant (CDBG) Program Funds

The subcommittee recommends that a CDBG grant is written to request funds for sewer maintenance and repairs in the area bordering Ashlan/California/Chestnut/West. This entire area is CDBG eligible and due to the age of the area is prone to aging infrastructure and in need of maintenance. DPU will have an opportunity to apply for CDBG funding in next year's budget cycle.

Change in City Codes and Upgrade to Repair Standards

The City may consider adopting an upgrade to the current standard for sewer lateral repairs. An upgraded standard which can include, but would not be limited to, less intrusive methods than digging up property owner's yards or the city street can often be more cost efficient. Staff researched Pipe Bursting, Cured In Place Pipe (CIPP) and a newer technology Trenchless Pipe Re-lining. These methods are becoming more cost effective and generally require no digging or excavation, takes significantly less time to complete, and are also very durable. If the City takes a formal position to adopt updated standards to sewer lateral repair and replacement, both the city infrastructure and private property owner could benefit from a less intrusive procedure and more efficient method. Additionally, by adopting a new standard when the newer less intrusive technology is feasible, all plumbers and contractors would have to adhere to this standard which would benefit property owner's city wide and could be implemented when a permit is pulled by the plumbing contractor. This upgraded standard may not apply in some cases where a complete excavation of the line is deemed necessary.

Private Sewer Lateral Insurance Program

There are a variety of private sewer lateral insurance programs that are available to property owners for the purpose of funding major repairs and replacement of sewer laterals. Some programs are administered by the municipality or agency and the fee for the insurance is added on to the utility bill. With less than 1% a year of households reporting SSOs annually, it is not likely that a citywide mandated insurance program and the cost of the premiums associated with them would be supported. There may however, be an opportunity to explore and suggest a reputable outside insurance program for our customers who wished to purchase insurance on their own. Due to the issues of Prop 218 and challenges to Utility Billing & Collections (UB&C) in administering a city run program, the optional individual insurance program may be the most feasible. DPU will consider issuing an RFQ (Request for Qualification) where a list of insurance companies can be identified as being qualified to provide a sewer lateral insurance policy for individual property owners who wish to be proactive and obtain insurance.

Low Interest Loans and a Revolving Loan Fund

Although the need to do a major repair or total replacement of a sewer lateral is not common, the cost can sometimes be a major challenge to the homeowner. In the event that there is not the need for quick action, there may be an opportunity to seek funding for either a Low Interest Loan Program or participation in a Revolving Loan Fund which is being set up to offer assistance to home owners for new sewer connections. The terms of a loan program or legality of using a revolving loan fund for repairs or replacement can be explored, although it should be noted that the terms and timelines of a loan approval process may deem this option unfeasible in an urgent situation. Additionally, funds would have to be identified to establish a loan program.

City Rebate or Incentive Program for Maintaining Lateral

Some cities offer rebates or incentives to residents connected to their city's sewer system to proactively inspect or repair their private laterals. The City of Santa Barbara for instance offers an inspection incentive up to \$150 when the city is provided a videotape and inspection report by a qualified inspector certifying the lateral is in good condition. Following direction and the appropriate research, there could be an opportunity to seek a sewer maintenance and inspection rebate program in the future.

Mandatory Sewer Inspection at Time of Sale

There have been many attempts made at the state level to require sewer lateral inspections at the time of sale of a home much like the mandatory termite inspection. Although this requirement has not been successfully passed at the state level, the City of Fresno may consider an ordinance which would require all homes being sold in the City to include a sewer inspection at the time of sale. Further research would be required as to the feasibility of a proposed ordinance.

Public Outreach and Education

The Wastewater/Sewer Division has conducted several public outreach campaigns related to the proper disposal of Fats, Oils & Grease (FOG) because this is the main cause of SSOs. In fact, they have won awards for their public outreach. This subcommittee process has taught us that we can do much more in the way of educating the public on their need to adopt proper disposal habits and the importance in conducting routine maintenance of their systems. The outreach will give specific tips on how to be successful in preventing SSOs as well as maintenance information and products available to assist them. We are committed to increasing the frequency and methods of public outreach and education on these issues and will continue the efforts.

**CLOSING**

We would like to note that this report is a result of collaboration by DPU, the UAC Subcommittee and members of FIC. As previously stated, these concepts and opportunities have been introduced and discussed during the subcommittee meetings. A majority of these options would require official direction from the City Manager, and in some cases City Council approval. They have been presented as options for discussion and recommendations in an advisory capacity at the request of the UAC subcommittee. This report may be forwarded to the Mayor and City Council for their review and consideration, or, specific selected items may be recommended by the UAC for consideration by the Mayor and City Council.



## **Appendix G: Draft Technical Memorandum No. 1**

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Municipal Financial Services Draft Technical Memorandum No. 1, Evaluation of Water Rate Development Methodology, dated August 30, 2010

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DRAFT

Prepared for: The City of Fresno, California

Project Title: Water Rate Study

**Technical Memorandum No. 1**

Subject: Evaluation of Water Rate Development Methodology

Date: August 30, 2010

To: Robert Andersen, Assistant Director, Department of Public Utilities, City of Fresno

Prepared by: \_\_\_\_\_  
Tom Pavletic, Municipal Financial Services

**Limitations:**

*This document was prepared solely for the City of Fresno in accordance with professional standards at the time the services were performed and in accordance with the contract between for the City of Fresno and Municipal Financial Services dated June 3, 2010. This document is governed by the specific scope of work authorized by for the City of Fresno; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by for the City of Fresno and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.*

## 1. INTRODUCTION

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This Technical Memorandum (TM) No. 1 summarizes key issues related to the development of cost of service based metered rates. Key issues include restrictions on water rate development imposed through contracts, laws and policy; the need to incorporate and optimize competing water rate development objectives; and the determination of customer water use data necessary for the development of rates.

## 2. RESTRICTIONS ON WATER RATE DEVELOPMENT METHODOLOGY

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There are a number of restrictions on what type of water rate structure may be developed. Those restrictions include the following:

- Central Valley Project contract terms and conditions
- California Assembly Bill 514 and Assembly Bill 2572 (2003-04 Legislative Session)
- California Urban Water Conservation Council (CUWCC) Best Management Practices (BMPs)
- California Constitution, Article XIII D (commonly referred to as Proposition 218), Section 6(b), requirements for existing, new or increased fees and charges
- Internal City Water Division requirements

These restrictions are summarized below and are in addition to the standard rate development objectives of revenue sufficiency and stability and equity.

### 2.1 Central Valley Project Contract Terms and Conditions

CVP water accounts for about 40 percent of the City's water supply (the main source of supply is groundwater). Assembly Bill 514 and Assembly Bill 2572 require urban water suppliers that receive water from the federal Central Valley Project (CVP) to begin charging a metered rate to all users that have meters installed starting in 2010, and complete the installation of all meters by January 2013.

### 2.2 Assembly Bill 514 and Assembly Bill 2572

These two assembly bills were made law in the 2003-04 legislative session. Assembly Bill 514 (approved by the Governor October 8, 2003) modified the California Water Code by adding Section 111 which requires urban water suppliers that receive water from the federal Central Valley Project to begin charging a metered rate to all users that have meters installed starting in 2010, and complete the installation of all meters by January 2013. Assembly Bill 2572 (approved by the Governor September 29, 2004) amended and renumbered Section 111 of the California Water Code and added qualifications regarding applicability of Section 111.

### 2.3 California Urban Water Conservation Council BMPs

The California Urban Water Conservation Council was created to increase efficient water use across California. The City of Fresno is a signatory agency with the CUWCC. CUWCC's goal is to integrate urban water conservation BMPs into the planning and management of California's water agencies. BMP 11



promotes water conserving retail water rate structures. BMP11 defines “conservation pricing”, implementation schedules, coverage requirements, requirements for documenting BMP implementation and criteria to determine BMP implementation status.

The CUWCC definition of a conservation pricing requires volumetric rate(s). Volumetric rates include uniform rates that are constant regardless of the quantity consumed, seasonal rates, tiered rates and allocation-based rates. Volumetric rates are deemed (by the CUWCC) sufficiently consistent with the definition of conservation pricing when it satisfies at least one of two options related to revenue from volumetric rates and meter service charges. The option that would apply to the City of Fresno has a goal of 70 percent of total revenue from the combination of both volumetric rates and meter service charges to be from volumetric rates.

The CUWCC recognized in establishing an implementation schedule for volumetric rates that an agency shall not be required to increase the volumetric component of the rate structure by more than 10 percent in any single year. The CUWCC also recognizes exceptions for agencies unable to meet BMP 11 requirements due to legal constraints (for example Proposition 218).

## 2.4 Proposition 218

Proposition 218 (California Constitution Article XIII D Section 6(b)) lists five substantive (as opposed to procedural) requirements for existing, new or increased fees and charges. Those requirements are:

- (1) Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service.
- (2) Revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.
- (3) The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.
- (4) No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question. Fees or charges based on potential or future use of a service are not permitted. Standby charges, whether characterized as charges or assessments, shall be classified as assessments and shall not be imposed without compliance with Section 4.
- (5) No fee or charge may be imposed for general governmental services including, but not limited to, police, fire, ambulance or library services, where the service is available to the public at large in substantially the same manner as it is to property owners. Reliance by an agency on any parcel map, including, but not limited to, an assessor's parcel map, may be considered a significant factor in determining whether a fee or charge is imposed as an incident of property ownership for purposes of this article. In any legal action contesting the validity of a fee or charge, the burden shall be on the agency to demonstrate compliance with this article.

## 2.5 Water Division Requirements

The Master Fee Schedule amendment that adopted residential metered water rates in 2009 included the following rate structure requirements of the Water Division:

- Deliver water that meets all current state and federal mandates
- Satisfy water supply needs for fire protection and residential, commercial, industrial, municipal, irrigation and school customers

- Meet performance measures
- Maintain operations, maintenance, administrative and other support activities
- Pay for the surface water entitlement from the U.S. Bureau of Reclamation and the Fresno Irrigation District assessment
- Fund estimated PG&E energy costs for pumping power
- Provide appropriations for the three major Division initiatives in FY 2010: single family residential meter program, water conservation program enhancement and to address the increase capital program delivery
- Achieve the required 125% debt service and 100% operating coverage test ratios for debt service obligations
- Provide adequate fund reserves

The Water Division requirements basically state that the rate structure should produce sufficient revenue to fund operating and capital expenditures, meet debt service obligations and provide adequate fund reserves.

## **2.6 Impact of Restrictions on Rate Structure Development**

The restrictions summarized above will have a profound impact on the development of a new water rate structure.

As noted, the Water Division requirements basically state that the rate structure should produce sufficient revenue to fund operating and capital expenditures, meet debt service obligations and provide adequate fund reserves.

The other restrictions will require the development of volumetric rates and meter service charges that do not exceed the proportional cost of service. The flat rates, volumetric rates and meter service charges that comprise the current rate structure have not been demonstrated to be supported by proportional cost of service principles.

The requirement that revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed may limit the continued use of lower rates for senior citizens. That is, the subsidy provided senior citizens may have to be funded from the general fund rather than from water rate payers.

The rate of increase in the price level of volumetric rates and the percent of total revenues from volumetric rates will need to meet the combined requirements from several statutes, laws and agreements. The requirements applicable to volumetric rates create a corollary requirement for meter service charges. To the extent that revenue from volumetric rates must increase; the amount of revenue from meter service charges, and the actual meter service charges, must decrease.

## **3. CURRENT RATE STRUCTURE**

Prior to the addition of residential metered water rates in 2009, the current rates were effective September 1, 2008. The rates in the current rate structure (residential flat rates for both single family and senior citizens, volumetric rates, meter service charges, fluoridation charges, travel meter charges, backflow prevention device charges and other miscellaneous charges) were the result of a series of “across-the-board” percentage

increases and were developed as shown in a *December 2006 Water Rate Study Final Report* (2006 Water Rate Study). The series of rate increases (18% on April 1, 2007, 18% on September 1, 2007 and 23% on September 1, 2008) were designed to increase rates so as to collect sufficient revenue to fund operating and capital expenditures, meet debt service obligations and provide adequate fund reserves. The rates in existence prior to the “across-the-board” percentage increases were not demonstrated in the 2006 Water Rate Study to be supported by proportional cost of service principles.

During November 2009, the City approved Master Fee Schedule Resolution No. 80-420 which added residential metered water rates in the Water Fee Section under the Department of Public Utilities. The residential metered water rates included “standby charges” for various meter sizes and a uniform quantity charge for all levels of water use. The rates were effective March 1, 2010 and compliment the residential flat rates for single family only – that is, no residential metered water rates for senior citizens were adopted.

The residential metered rates approved during November 2009 were developed by HDR Engineering, Inc. (HDR). While the rates developed by HDR for residential customers were revenue neutral (meaning that the rates should produce total revenue that is no more or less than what is collected based on the flat rates that apply to residential customers) they were not based on a detailed cost of service evaluation.

The residential metered rates developed by HDR were also based on one significant finding related to water system operations and three significant findings related to all projected residential water meter connections. These findings are summarized below:

- Residential average monthly water use of 25 hundred cubic feet (615 gallons per day) for both metered and unmetered customers
- Residential meters size distribution among ¾-inch, 1-inch, 1-½-inch and 2-inch meters of 7.5% / 88.6% / 3.8% / 0.1%
- Non-Active meters are about 2.7% of all residential accounts
- System water losses at 20% of total production

All of the findings listed above will be reviewed as part of the cost of service evaluation for the new rate structure.

## 4. ESTIMATION OF METERED AND UNMETERED SINGLE FAMILY WATER USE

One of the major issues in the development of water rates for the City of Fresno is the estimation of water use by both metered and unmetered single family residential (SFR) customers. Reasonably accurate estimates for both are necessary because all unmetered SFR customer will not be converted to meters and assessed metered rates, until FY 14. As a consequence, there will be two types of SFR customers (unmetered and metered) until FY14. To calculate cost-of-service based rates for both types of SFR customers that recover the revenue requirements allocable to each, their expected water use must be accurately estimated.

### 4.1 Estimates of Unmetered SFR Water Use

Table 1 summarizes various prior estimates of unmetered SFR average monthly water use. These estimates range from 21.3 HCF to 30.7 HCF. These estimates differ for various reasons. The major reasons are climatic conditions, primarily climatic conditions in the late spring and early fall, and estimates of unaccounted for water (UAFW).<sup>1</sup>

**Table 1. Summary of Estimates of Unmetered Single Family Residential Water Use, HCF/month**

Document	Est. HCF/mo	Comment
Water Rate Study, July 1991 (Brown and Caldwell)	27.0	Survey of other unmetered service areas with similar climatic conditions shown in Table 2-4.
Residential Water Demand Characterization, June 1995 (HDR)	21.3	Table on page 21.
Water Rate Study, February 1998 (Brown and Caldwell)	23.9	Average of City records for FY94 - FY96 shown in Tables 2-1 through 2-3.
	25.2	Average of selected metered, but not billed at metered rates, accounts for FY94 - FY96 shown in Table A-1.
Urban Water Management Plan, August 2008 (West Yost Associates)	29.2	Avg of 2005-07 water use w/ 10% UAFW, Table 6-3.
	26.4	Avg of 2005-07 water use w/ 15% UAFW, Table 6-3.
	23.6	Avg of 2005-07 water use w/ 20% UAFW, Table 6-3.
		UAFW= Unaccounted for Water
Development of Residential Metered Water Rates and Drought Surcharges, July 2009 (HDR)	30.1	Assumed system losses of 10% shown in Table 3-2.
	27.3	Assumed system losses of 15% shown in Table 3-2.
	24.5	Assumed system losses of 20% shown in Table 3-2.
Projected Operation Results for Water Revenue Bonds, 2010, Series A (HDR)	25.0	Based on assumed system losses of 20% and rounded to highest whole number shown in Table 1.

<sup>1</sup> Unaccounted-for-water (UAFW) is mentioned in the City's 2008 Urban Water Management Plan prepared by West Yost Associates. UAFW includes water for hydrant flushing and hydrant testing, construction, fire fighting, system leaks and water main breaks. For planning purposes in the 2008 Urban Water Management Plan, unaccounted-for-water was assumed equal to 10 percent.

An example of the impact of climatic conditions is the estimate of SFR use in the 1998 Brown and Caldwell *Water Rate Study*. The estimate of 23.9 HCF/month shown in Table 1 is the average of 26.11, 23.98 and 21.73 for FY94, FY95 and FY96, respectively. These differences are primarily a result of climactic conditions (mainly precipitation). Similarly, because estimating unmetered SFR water use is a deductive process (subtracting metered use and unaccounted for water from total production), the estimates made in both the 2008 West Yost Associates UWMP and the July 2009 HDR report vary with estimates of unaccounted for water.

In any event, as shown in Table 1 of this TM, estimates for unmetered SFR monthly water use average about 26.1 HCF/month if we use the average from the 1998 Brown and Caldwell study (24.5 HCF/month) together with the average from the 2008 UWMP and the July 2009 HDR study (both for the 15% UAFW case). Because this particular type of customer will be gone in a few years, we feel the estimate is reasonable but is an amount that is slightly in excess of the 25 HCF/month used in the 2010 HDR letter report.

## 4.2 Estimates of Metered SFR Water Use

In Brown and Caldwell's prior work developing metered water rates for SFR customers who had previously been unmetered and assessed flat rates (for example, Northridge Water District, City of Grass Valley and City of Davis) they were successful in estimating water use reduction by using the simple assumptions that with charges based on metered water use, indoor water use would be reduced by 10 percent and outdoor water use would be reduced by 30 percent.

Using this information on SFR water use shown in Table 2-9 and Table 2-10 of the 1998 Brown and Caldwell *Water Rate Study*, we have calculated that SFR indoor water use approximates 35.5 percent of total SFR water use and outdoor water use approximates 64.5 percent. Based on the assumption that indoor and outdoor SFR use will be reduced by 10 percent and 30 percent, respectively; total SFR water use will be reduced by 17 percent. This calculation is presented in Table 2.

<b>Table 2. Estimation of Unmetered Single Family Residential Indoor and Outdoor Water Use</b>			
<b>Description</b>	<b>Amount HCF</b>	<b>Percent of Use</b>	<b>Comment</b>
<b>Total Annual SFR Water Use</b>	25,916,570	100%	Total water use for FY96.
<b>Usage by Season and Type</b>			
Peak Season Use	17,560,055	67.8%	Water use in the period May - October.
Off-Peak Season Use	8,356,515	32.2%	Water use in the period November - April.
Outdoor Use	9,203,540	35.5%	Difference between Peak and Off-Peak use.
Indoor Use	<u>16,713,030</u>	64.5%	Difference between Outdoor and Total use.
Total	25,916,570		
<b>Estimated Reduction In Use</b>			
<i>Reduction in Use</i>			
Outdoor Use	2,761,062	30.0%	
Indoor Use	<u>1,671,303</u>	10.0%	
Total	4,432,365		
<i>Use Net of Reduction</i>			
Outdoor Use	6,442,478	-30%	
Indoor Use	<u>15,041,727</u>	-10%	
Total	21,484,205	-17%	

If average SFR water use under unmetered conditions is assumed to be 26.1 HCF/month, average SFR water use under metered conditions will approximate 21.7 HCF/month ( $26.1 \text{ HCF/month} \times [1-0.17]$ ). Because the marginal cost of water (represented by the quantity charge) is likely to be relatively low (\$0.65/HCF to \$0.75/HCF) and the SFR customers will have two months to compare their actual unmetered bill to their bill based on metered rates, conservation could be less than the assumed 17%.

Average annual SFR water use used in the development of cost of service rates is 26 HCF/month for unmetered SFR customers and 22 HCF/month for metered SFR customers. The City may still wish to use the 21.7 HCF/month estimate for metered SFR customers, or even a lower amount, to ensure that they recover the required amount of revenue from quantity charges.

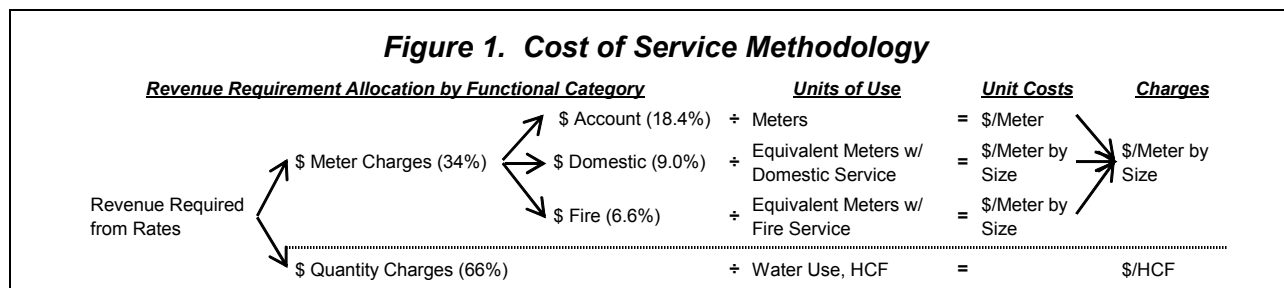
If the City actually develop rates under the various rate structure alternatives (for example, the 2-tiered quantity charges) we will estimate additional reductions in water use (if any) achieved through the use of tiered quantity charges based on assumed price elasticities of usage in the various tiers.

## 5. COST OF SERVICE

### 5.1 Allocation of Costs between Meter and Quantity Rates

Rates developed based on cost of service methodology result in the recovery of water system costs in proportion to the level of water service attributable to individual accounts. In this study, the cost of service methodology adheres to industry standards.

Details of the cost of service methodology are summarized in Figure 1. The total amount of revenue required from rates is allocated between amounts to be recovered from meter service charges and from the quantity charge. This is accomplished by first allocating costs to two functional cost categories – those that are independent of the amount of water use (for example, billing, collection, meter reading, fire protection) and those that are dependent on the amount of water use (source of supply, treatment, storage, distribution, etc.).



In order to establish proportional allocation of costs between the different types of metered water service (domestic, irrigation and private fire service), the amount of revenue required from meter service charges is further allocated between amounts attributable to accounts, domestic use and fire protection. Next, each of these four dollar amounts (three for the meter service charges and one for the quantity charge) is divided by units of use to yield unit costs of service that are applicable to all customers and used in the development of rates.

The units of use for the meter service charges are different for each of the three cost components. The units of use for accounts is the total number of metered connections (an unmetered connection is counted as a metered connection in those years during conversion of residential accounts). The units of use for domestic use are the equivalent number of meters that receive water for domestic use and excludes metered connections for private fire services. The units of use for fire service use are the equivalent number of meters that receive water for fire service and excludes metered connections for irrigation services.<sup>2</sup>

The three unit cost components for meter service charges are combined to develop charges by meter size for the three types of metered water service (domestic, irrigation and private fire service). The resulting rate structure has different rates for each meter size by type of metered water service (10 meter sizes ranging from 3/4-inch to 12-inch and three types of service yield 30 meter service charges).

The derivation of the unit cost for the quantity charges is simply the amount of revenue required from the quantity charges divided by the amount of water use. The quantity charge is applicable to all metered water use for any customer. Note that water use for fire fighting and testing of private fire service meters is not billed and therefore not considered in the development of the quantity charges.

## 5.2 Quantity Charges

The development of recommended quantity charges based on cost of service principles involves allocating revenue requirements related to the source of supply and production of water and dividing that dollar amount by the projected amount of water use. The methodology used to develop recommended quantity charges and the projections of water use differs from that used to develop the current quantity charges. These differences are described in the following subsections.

### 5.2.1 Current Quantity Charges

As noted already, the quantity charge in existence prior to the “across-the-board” percentage increases which began in 2007 was not demonstrated in the 2006 Water Rate Study to be supported by proportional cost of service principles and that while the quantity charge developed by HDR for residential customers in November 2009 (which were based on revenue from meter charges developed using “across-the-board” percentage increases) were revenue neutral they were not based on a detailed cost of service evaluation. As such the current quantity charges for residential and nonresidential customers are not based on cost of service principles.

### 5.2.2 Recommended Quantity Charges

As shown in Figure 1, the amount of revenue to be recovered from recommended quantity charges is 66 percent of the total revenue required from both meter service charges and quantity charges (note that revenue from fees for the fluoridation program, backflow prevention program and other miscellaneous services) are not included in the total). This percentage is different from the amount of revenue projected to be recovered from quantity charges in FY11 (62 percent). Note that these percentages are completely dependent on

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<sup>2</sup> Because the costs for domestic use and fire service are allocated based on the maximum flow rate for each meter size, meters larger than 3/4-inch must be expressed in terms equivalent to that of a 3/4-inch meter through use of an “equivalency factor”. The rated maximum capacity for a 3/4-inch meter is 30 gallons per minute (gpm) and is the basis for determining the number of equivalent meters. For example, using the estimated maximum flow rate for a 3/4-inch meter (30 gpm), the maximum flow rate for a 1-inch meter (50 gpm) is equivalent to about one and two-thirds, 3/4-inch meters (an “equivalency factor” of 1.67). The maximum flow rate for a 2-inch meter (160 gpm) is equivalent to about five and one-third, 3/4-inch meters (an “equivalency factor” of 5.33).



assumptions of projected water use for each customer class; particularly for unmetered and metered residential users.

The difference between the percentage of revenue to be recovered from recommended quantity charges in FY12 and beyond versus the current charges is due to two factors which have opposite effects:

- Revenue for residential metered customers in FY11 is based on a quantity charge of \$0.61/HCF (developed by HDR) which is much lower than the recommended charge which makes the percentage of revenue from current charges relatively lower; and
- The amount of water use assumed in the development of the current charge for residential metered customers in FY11 is higher than that used for the development of recommended charges which makes revenue from the current charges relatively higher.

The impact of the first factor is dominant and results in a lower percentage of revenue from quantity charges in FY11 than is projected for FY12 and beyond.

The percentage of revenue to be recovered from quantity charges in FY12 and beyond is set at 66 percent for the following reasons:

- The current percentage of revenue from quantity charges is too low as a result of the implementation of charges that are not based on cost of service methodology;
- The target percentage of revenue from quantity charges is a minimum of 70 percent which will allow attainment of CUWCC's BMP 11;
- The City seeks to limit the percentage increase in charges during the transition to cost of service charges;
- The City seeks to limit the variation in customer bills during the transition to metered service for residential customers;
- Standard industry cost of service allocation methodology would support a range of percentages of revenue from quantity charges typically ranging from 60 – 85 percent; and
- The City plans to evaluate the amount of water use subsequent to completion of residential meter installation and conduct a more comprehensive cost of service review.

## **5.3 Meter Service Charges**

The development of recommended meter service charges based on cost of service principles involves allocating revenue requirements that are independent of water use among three categories of costs and dividing those dollar amounts by the projected number of meters or equivalent meters. The methodology used to develop recommended meter service charges differs from that used to develop the current meter service charges. These differences are described in the following subsections.

### **5.3.1 Current Meter Charges**

As already noted, the meter charges in existence prior to the “across-the-board” percentage increases which began in 2007 were not demonstrated in the 2006 Water Rate Study to be supported by proportional cost of service principles. The meter service charges assigned by HDR for residential customers in November 2009 were the same as those adopted based on the 2006 Water Rate Study. As such the current meter service charges for residential and nonresidential customers are not based on cost of service principles.



In addition, two of the main factors in the determination of cost of service meter service charges are not known for the current charges:

- The percent of revenue requirements allocated among the three cost components associated with costs that are independent of water use (account, domestic use and fire service); and
- The equivalent meter ratios that relate the capacity of meters to a standard meter size.

In other words, even if two cost of service meter service charge structures both recovered the identical amount of revenue (revenue neutral), the charges for each size of meter would be radically different as the assumptions for each of the two factors were changed.

### **5.3.2 Recommended Meter Service Charges Structure**

As noted in the section describing the allocation of costs between meter service charges and quantity charges, the amount of revenue from recommended meter charges is 34 percent of the total revenue required from both meter charges and quantity charges. Also shown in Figure 1 in that section, the percent of revenue requirements allocated among the three cost components is 18.4% to accounts, 9.0% to domestic use and 6.6% to fire service.

The percentage of revenue to be recovered from meter service charges in FY12 and beyond is set at 34 percent, and allocated to cost components as described above, for the following reasons:

- The current percentage of revenue from meter charges is too high as a result of the implementation of charges that are not based on cost of service methodology;
- The target percentage of revenue from meter service charges is a maximum of 30 percent which will allow attainment of CUWCC's BMP 11;
- The City seeks to limit the percentage increase in charges during the transition to cost of service charges;
- The City seeks to limit the variation in customer bills during the transition to metered service for residential customers;
- Standard industry cost of service allocation methodology would support a range of percentages of revenue from meter service charges typically ranging from 15 – 40 percent; and
- The City plans to evaluate the amount of water use subsequent to completion of residential meter installation and conduct a more comprehensive cost of service review.

As noted above, the other main factor in the determination of cost of service meter charges not known for the current charges is the equivalent meter ratios (equivalency factors) that relate the capacity of meters to a standard meter size. The equivalency factors used in the development of recommended meter service charges are shown in Table 3 (below).

**Table 3. Determination of Equivalent Meter Ratios**

<b>Residential</b>	<u><i>Rated Cap.</i></u>	<u><i>Eq. ¾" Mtrs</i></u>
¾-inch or smaller	30 gpm	1.00
1-inch	50 gpm	1.67
1-1/2-inch	100 gpm	3.33
2-inch	160 gpm	5.33
3-inch	320 gpm	10.67
4-inch	500 gpm	16.67
6-inch	1,000 gpm	33.33
8-inch	1,600 gpm	53.33
10-inch	2,300 gpm	76.67
12-inch	4,300 gpm	143.33
<b>Domestic</b>	<u><i>Rated Cap.</i></u>	<u><i>Eq. ¾" Mtrs</i></u>
¾-inch or smaller	30 gpm	1.00
1-inch	50 gpm	1.67
1-1/2-inch	100 gpm	3.33
2-inch	160 gpm	5.33
3-inch	320 gpm	10.67
4-inch	500 gpm	16.67
6-inch	1,000 gpm	33.33
8-inch	1,600 gpm	53.33
10-inch	2,300 gpm	76.67
12-inch	4,300 gpm	143.33
<b>Irrigation</b>	<u><i>Rated Cap.</i></u>	<u><i>Eq. ¾" Mtrs</i></u>
¾-inch or smaller	30 gpm	1.00
1-inch	50 gpm	1.67
1-1/2-inch	100 gpm	3.33
2-inch	160 gpm	5.33
3-inch	320 gpm	10.67
4-inch	500 gpm	16.67
6-inch	1,000 gpm	33.33
8-inch	1,600 gpm	53.33
10-inch	2,300 gpm	76.67
12-inch	4,300 gpm	143.33
<b>Private Fire Service</b>	<u><i>Rated Cap.</i></u>	<u><i>Eq. ¾" Mtrs</i></u>
Private Hydrant	500 gpm	16.67
1-inch	500 gpm	16.67
1-1/2-inch	500 gpm	16.67
2-inch	500 gpm	16.67
2-1/2 and 3-inch	500 gpm	16.67
4-inch	500 gpm	16.67
6-inch	1,000 gpm	33.33
8-inch	1,600 gpm	53.33
10-inch	2,300 gpm	76.67
12-inch	4,300 gpm	143.33
<b>Travel Meters</b>	<u><i>Rated Cap.</i></u>	<u><i>Eq. ¾" Mtrs</i></u>
3-inch	320 gpm	10.67

In addition to the calculation of equivalency factors, there are some important assumptions made in the calculation of meter service charges that change the meter service charge structure for each customer class. Those assumptions are listed below:

- Residential and Domestic meter service charges include the account, domestic use and fire service components;
- Irrigation meter service charges include the account and domestic use components and exclude the fire service component (a new assumption not reflected in the current charges);
- Fire service meter service charges include the account and fire service components and exclude the domestic component;
- Fire meter service charges for private hydrants and for meter sizes 4-inch and smaller are assigned the same rated capacity; and
- Travel meter charges are assigned the same 3-inch meter rated capacity.

## 5.4 Special Program Fees

The City has fees that pay for the implementation of two special programs that are part of the water enterprise. These two programs are the Fluoridation Program and the Backflow Prevention Program. The development of cost of service based fees for these two programs are described in the following subsections.

### 5.4.1 Fluoridation Program

The Fluoridation Program effects approximately 4,850 customers. The current fee, as with other water enterprise charges, is based on “across-the-board” percentage increases to prior years’ fees. The extent to which the current fees are supported by proportional cost of service principles is not known.

Recommended fees were developed by projecting the annual expenditures associated with the program and allocating those expenditures among the projected annual number of customers participating in the program. Fees for FY11 are projected to recover approximately \$263,000. The cost of the Fluoridation Program in FY12 is projected to be approximately \$198,000. As a result, the FY12 fee for the Fluoridation Program is calculated to decrease from the current fee amount and then increase gradually each year as the projected cost of the program escalates.

### 5.4.2 Backflow Prevention Program

The Backflow Prevention Program effects approximately 6,900 customers. The current fee structure, as with other water enterprise charges, is based on “across-the-board” percentage increases to prior years’ fees. The extent to which the current fees are supported by proportional cost of service principles is not known.

The current fee structure has two sets of fees – one for Double-check and/or Pressure Vacuum Breaker Assemblies and one for Reduced Pressure Principle Assemblies. As with meter service charges for water service, the current fees are greater for larger size assemblies.

And as with the current meter service charges, two of the main factors in the determination of cost of service fees are not know:

- Program expenditures allocated between costs related to service of assemblies which are approximately the same regardless of assembly size and costs related to replacement parts which increase with assembly size; and
- The equivalent assembly ratios that relate the costs related to replacement parts which increase with assembly size.

In other words, even if two cost of service fee structures both recovered the identical amount of revenue (revenue neutral), the charges for each type and size of assembly would be radically different as the assumptions for each of the two factors were changed.

Recommended fees were developed by projecting the annual expenditures associated with the program and allocating those expenditures among the projected annual number of customers participating in the program. Fees for FY11 are projected to recover approximately \$1,085,000. The cost of the Backflow Prevention Program in FY12 is projected to be approximately \$1,012,000.

Even though the FY12 expenditures are nearly revenue neutral with the amount of revenue recovered through the current fee structure, the FY12 fees for the Backflow Prevention Program are calculated to change radically from the current fees depending on the assembly type and size and then increase gradually each year by the same percentages as the projected cost of the program escalates. Equivalency factors and fees for FY11 and FY12 are compared in Table 4 (below).

**Table 4. Current and Projected FY12 Backflow Prevention Program Fees**

Assembly Type	Equivalency Ratio		Monthly Fee		Change		Count
	Implied FY11	Calculated FY12	Current FY11	Projected FY12	\$	%	
Double-check and/or Pressure Vacuum Breaker							
3/4"	1.00	1.00	\$6.70	\$9.34	\$2.64	39%	11
1"	1.00	1.00	\$6.70	\$9.34	\$2.64	39%	23
1-1/4"	1.33	1.60	\$8.92	\$10.58	\$1.66	19%	9
1-1/2"	1.33	3.30	\$8.92	\$14.10	\$5.18	58%	38
2"	1.33	3.30	\$8.92	\$14.10	\$5.18	58%	119
2-1/2"	2.66	11.60	\$17.83	\$31.24	\$13.41	75%	3
3"	2.66	11.60	\$17.83	\$31.24	\$13.41	75%	4
4"	2.66	11.60	\$17.83	\$31.24	\$13.41	75%	12
6"	3.99	16.00	\$26.73	\$40.33	\$13.60	51%	12
8"	3.99	35.00	\$26.73	\$79.59	\$52.86	198%	17
10"	6.65	37.00	\$44.57	\$83.72	\$39.15	88%	0
						Total >	248
Reduced Pressure Principle							
3/4"	1.00	1.00	\$6.70	\$9.34	\$2.64	39%	493
1"	1.33	1.00	\$8.92	\$9.34	\$0.42	5%	1,120
1-1/4"	1.66	1.60	\$11.12	\$10.58	-\$0.54	-5%	310
1-1/2"	2.00	1.60	\$13.42	\$10.58	-\$2.84	-21%	1,155
2"	2.00	1.60	\$13.42	\$10.58	-\$2.84	-21%	2,428
2-1/2"	2.66	5.60	\$17.83	\$18.85	\$1.02	6%	230
3"	2.66	5.60	\$17.83	\$18.85	\$1.02	6%	380
4"	2.66	6.20	\$17.83	\$20.09	\$2.26	13%	395
6"	3.99	6.20	\$26.73	\$20.09	-\$6.64	-25%	97
8"	5.32	11.00	\$35.65	\$30.00	-\$5.65	-16%	38
10"	7.98	12.00	\$53.48	\$32.07	-\$21.41	-40%	17
						Total >	6,663

Note that the large increase in the percentage and dollar amounts for most assembly types and sizes is offset mainly by the reduction in fees for the two most common assemblies (the 1½-inch and 2-inch Reduced Pressure Principle type) and four other assemblies (the 1¼-inch, 6-inch, 8-inch and 10-inch Reduced Pressure Principle type).

## 5.5 Other Miscellaneous Fees

The City has a menu of fees for other services provided to water enterprise customers. These other fees are listed below:

- Other Flat Charges for Single Family Customers
  - Additional Living Unit
  - Discharge Water Into Dry Well
  - Air Conditioning/Refrigeration Unit
    - Without Water-Saving Devices
    - With Water-Saving Devices
- Irrigation of City-Owned Property, Not Metered
- Private wells (irrigation or commercial)

All of these other fees, except the fee for private wells, will be eliminated as customers are converted from unmetered to metered connections.

Because of the imminent discontinuance of these other fees by FY 13 (except the fee for private wells), the development of cost of service based fees was not performed. Instead, fees for these services during FY12 until their discontinuance are established by assigning “across the board” annual increases of 2 percent to the current fees.

The fee for private wells, which is applied to only a few customers, should be established in the same manner as for the special programs (Fluoridation and Backflow Prevention). Because the data required to establish these fees based upon cost of service methodology was not provided, the fees for private wells are established by assigning “across the board” annual increases of 2 percent to the current fees.

## 6. IMPACT ON RESIDENTIAL WATER BILLS

The impact upon residential water bills of the residential rate changes adopted by the City in November 2009 and of the projected cost of service based rate structures are evaluated for FY11, FY12, FY13 and FY14. NOTE THAT RATES AND BILLS FOR FY 12 ONWARD ARE PRELIMINARY AND NOT FINAL – THEY ARE ONLY USED TO ILLUSTRATE THE EXTREME VARIATION (AS A FUNCTION OF WATER USE) LIKELY TO OCCUR IF REVENUE FROM RATES IS INCREASED BY APPROXIMATELY 1.5% PER YEAR.

### 6.1 Residential Water Bills in FY11

In FY11, one element of the Master Fee Schedule for the water enterprise was changed – the addition of metered rates for residential customers. The changes made were those recommended by HDR in its July 2009 study entitled “Development of Residential Metered Water Rates and Drought Surcharges.” The City estimates that approximately 37,000 residential accounts will be metered and receive water bills based on metered rates during FY11.

Prior to the conversions, monthly water bills ranged from \$22.87 for an account with a lot size of 6000 sq. ft. or less to over \$83 for about 125 accounts with lot size of more than 42,200 sq. ft. A lot (regardless of size) converted to a 1-inch metered connection would need to use approximately 3,200 gallons per day, for an entire month, to generate a water bill of \$83 under the FY11 meter and quantity rates.

In FY 11, the first fiscal year of conversions from unmetered to metered residential accounts, there will be two subcategories of residential customers – those with no increase in their water rates (unmetered flat charges) and those that will be assigned the metered water rates. Those two subcategories along with two other subcategories are defined below:





**Subcategory 1** – Non-metered service to non-metered service (not converted to meter)

**Subcategory 2** – Non-metered service to metered service (converted to meter)

**Subcategory 3** – Metered service to non-metered service (not applicable in any year)

**Subcategory 4** – Metered service to metered service (converted in previous year but not applicable in FY11)

Table 5 summarizes the possible changes in monthly bills for three types of unmetered accounts of lot sizes 6000, 8000 and 14000 square feet and three types of metered accounts with 1-inch meters and monthly water use of 4, 22 and 40 HCF. Note that there are no accounts in Subcategory 3 in any year or Subcategory 4 in the first year of conversions. Detailed data of the monthly bill changes for all levels of water use between 0 and 40 HCF for Subcategory 2 accounts of lot sizes 6000, 8000 and 14000 square feet are shown in Appendix A, Table A-1.

<b>Table 5. Changes in Residential Monthly Bills FY10 to FY11</b>						
FY11 Service Type						
FY10 Service Type	Non-metered 6000 sf Lot	Non-metered 8000 sf Lot	Non-metered 14000 sf Lot	1-inch Meter / 4 HCF per mo	1-inch Meter / 22 HCF per mo	1-inch Meter / 40 HCF per mo
<b>Dollar Change</b>	<b>1. Non-metered to Non-metered</b>			<b>2. Non-metered to Metered</b>		
Non-metered 6000 sf Lot	\$0.00	NA	NA	-\$6.92	\$4.06	\$15.04
Non-metered 8000 sf Lot	NA	\$0.00	NA	-\$11.48	-\$0.50	\$10.48
Non-metered 14000 sf Lot	NA	NA	\$0.00	-\$25.16	-\$14.18	-\$3.20
	<b>4. Metered to Non-metered</b>			<b>3. Metered to Metered</b>		
1-inch Meter / 4 HCF per mo						
1-inch Meter / 22 HCF per mo						
1-inch Meter / 40 HCF per mo						
<b>Percent Change</b>	<b>1. Non-metered to Non-metered</b>			<b>2. Non-metered to Metered</b>		
Non-metered 6000 sf Lot	0%	NA	NA	-30%	18%	66%
Non-metered 8000 sf Lot	NA	0%	NA	-42%	-2%	38%
Non-metered 14000 sf Lot	NA	NA	0%	-61%	-34%	-8%
	<b>4. Metered to Non-metered</b>			<b>3. Metered to Metered</b>		
1-inch Meter / 4 HCF per mo						
1-inch Meter / 22 HCF per mo						
1-inch Meter / 40 HCF per mo						

## 6.2 Residential Water Bills in FY12

In FY 12, the second fiscal year of conversions from unmetered to metered residential accounts, there will be three subcategories of residential customers. Those three subcategories along with one other subcategory that is not applicable in any year (but shown to complete the matrix) are defined below:

**Subcategory 1** – Non-metered service to non-metered service (not converted to meter)

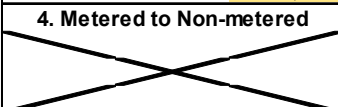
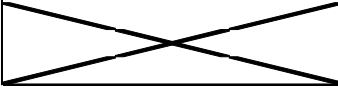
**Subcategory 2** – Non-metered service to metered service (converted to meter)

**Subcategory 3** – Metered service to non-metered service (not applicable in any year)

**Subcategory 4** – Metered service to metered service (converted in previous year)

Table 6 summarizes the possible changes in monthly bills for three types of unmetered accounts of lot sizes 6000, 8000 and 14000 square feet and three types of metered accounts with 1-inch meters and monthly water use of 4, 22 and 40 HCF. Note that there are no accounts in Subcategory 3 in any year. Detailed data of the monthly bill changes for lots between 6000 and 26000 sq. ft. (in increments of 500 sq. ft.) for Subcategory 1 accounts are shown in Appendix A, Table A-5. Detailed data of the monthly bill changes for all levels of water use between 0 and 40 HCF for Subcategory 2 accounts of lot sizes 6000, 8000 and 14000 square feet are shown in Appendix A, Table A-2. Detailed data of the monthly bill changes for all levels of water use between 0 and 40 HCF for Subcategory 3 accounts are shown in Appendix A, Table A-4.

**Table 6. Changes in Residential Monthly Bills FY11 to FY12**

Table 6. Changes in Residential Monthly Bills FY11 to FY12																					
FY12 Service Type																					
FY11 Service Type	Non-metered 6000 sf Lot			Non-metered 8000 sf Lot			Non-metered 14000 sf Lot			1-inch Meter / 4 HCF per mo			1-inch Meter / 22 HCF per mo			1-inch Meter / 40 HCF per mo					
<b>Dollar Change</b>	<b>1. Non-metered to Non-metered</b>						<b>2. Non-metered to Metered</b>														
Non-metered 6000 sf Lot	\$0.53	NA	NA																		
Non-metered 8000 sf Lot	NA	\$0.65	NA																		
Non-metered 14000 sf Lot	NA	NA	\$1.01																		
	<b>4. Metered to Non-metered</b>						<b>3. Metered to Metered</b>														
1-inch Meter / 4 HCF per mo																					
1-inch Meter / 22 HCF per mo																					
1-inch Meter / 40 HCF per mo																					
<b>Percent Change</b>	<b>1. Non-metered to Non-metered</b>						<b>2. Non-metered to Metered</b>														
Non-metered 6000 sf Lot	2%	NA	NA																		
Non-metered 8000 sf Lot	NA	2%	NA																		
Non-metered 14000 sf Lot	NA	NA	2%																		
	<b>4. Metered to Non-metered</b>						<b>3. Metered to Metered</b>														
1-inch Meter / 4 HCF per mo																					
1-inch Meter / 22 HCF per mo																					
1-inch Meter / 40 HCF per mo																					

### 6.3 Residential Water Bills in FY13

In FY 13, the third and final fiscal year of conversions (as planned by the City) from unmetered to metered residential accounts, there will be continue to be three subcategories of residential customers. Those three subcategories along with one other subcategory that is not applicable in any year (but shown to complete the matrix) are defined below:

**Subcategory 1** – Non-metered service to non-metered service (not converted to meter)

**Subcategory 2** – Non-metered service to metered service (converted to meter)

**Subcategory 3** – Metered service to non-metered service (not applicable in any year)

**Subcategory 4** – Metered service to metered service (converted in previous year)

Table 7 summarizes the possible changes in monthly bills for three types of unmetered accounts of lot sizes 6000, 8000 and 14000 square feet and three types of metered accounts with 1-inch meters and monthly water use of 4, 22 and 40 HCF. Note that there are no accounts in Subcategory 3 in any year. Detailed data of the monthly bill changes for lots between 6000 and 26000 sq. ft. (in increments of 500 sq. ft.) for Subcategory 1 accounts are shown in Appendix A, Table A-5. Detailed data of the monthly bill changes for all levels of water use between 0 and 40 HCF for Subcategory 2 accounts of lot sizes 6000, 8000 and 14000 square feet are shown in Appendix A, Table A-3. Detailed data of the monthly bill changes for all levels of water use between 0 and 40 HCF for Subcategory 3 accounts are shown in Appendix A, Table A-4.

**Table 7. Changes in Residential Monthly Bills FY12 to FY13**

FY13 Service Type						
FY12 Service Type	Non-metered 6000 sf Lot	Non-metered 8000 sf Lot	Non-metered 14000 sf Lot	1-inch Meter / 4 HCF per mo	1-inch Meter / 22 HCF per mo	1-inch Meter / 40 HCF per mo
<b>Dollar Change</b>	<b>1. Non-metered to Non-metered</b>			<b>2. Non-metered to Metered</b>		
Non-metered 6000 sf Lot	\$0.25	NA	NA	-\$8.39	\$5.53	\$19.44
Non-metered 8000 sf Lot	NA	\$0.31	NA	-\$13.13	\$0.79	\$14.70
Non-metered 14000 sf Lot	NA	NA	\$0.49	-\$27.35	-\$13.43	\$0.48
1-inch Meter / 4 HCF per mo	<b>4. Metered to Non-metered</b>			<b>3. Metered to Metered</b>		
1-inch Meter / 22 HCF per mo				\$0.22	NA	NA
1-inch Meter / 40 HCF per mo				NA	\$0.67	NA
				NA	NA	\$1.12
<b>Percent Change</b>	<b>1. Non-metered to Non-metered</b>			<b>2. Non-metered to Metered</b>		
Non-metered 6000 sf Lot	1%	NA	NA	-35%	23%	82%
Non-metered 8000 sf Lot	NA	1%	NA	-46%	3%	52%
Non-metered 14000 sf Lot	NA	NA	1%	-64%	-32%	1%
1-inch Meter / 4 HCF per mo	<b>4. Metered to Non-metered</b>			<b>3. Metered to Metered</b>		
1-inch Meter / 22 HCF per mo				1%	NA	NA
1-inch Meter / 40 HCF per mo				NA	2%	NA
				NA	NA	3%



## 6.4 Residential Water Bills in FY14

In FY 14, conversion of residential accounts from unmetered to metered residential accounts should be complete leaving only one category of residential customers – those that are metered.

Table 8 summarizes the possible changes in monthly bills for metered customers (in the context of the matrix shown for prior years). Detailed data of the monthly bill changes for all levels of water use between 0 and 40 HCF are shown in Appendix A, Table A-4.

<b>Table 8. Changes in Residential Monthly Bills FY13 to FY14</b>																	
<b>FY14 Service Type</b>																	
<b>FY13 Service Type</b>	<div>Non-metered 6000 sf Lot</div> <div>Non-metered 8000 sf Lot</div> <div>Non-metered 14000 sf Lot</div> <div>1-inch Meter / 4 HCF per mo</div> <div>1-inch Meter / 22 HCF per mo</div> <div>1-inch Meter / 40 HCF per mo</div>																
<b>Dollar Change</b>	<table> <tr> <td><b>1. Non-metered to Non-metered</b></td><td><b>2. Non-metered to Metered</b></td></tr> <tr> <td>Non-metered 6000 sf Lot</td><td>Non-metered 6000 sf Lot</td></tr> <tr> <td>Non-metered 8000 sf Lot</td><td>Non-metered 8000 sf Lot</td></tr> <tr> <td>Non-metered 14000 sf Lot</td><td>Non-metered 14000 sf Lot</td></tr> <tr> <td><b>4. Metered to Non-metered</b></td><td><b>3. Metered to Metered</b></td></tr> <tr> <td>1-inch Meter / 4 HCF per mo</td><td>\$0.13 NA NA</td></tr> <tr> <td>1-inch Meter / 22 HCF per mo</td><td>NA \$0.28 NA</td></tr> <tr> <td>1-inch Meter / 40 HCF per mo</td><td>NA NA \$0.42</td></tr> </table>	<b>1. Non-metered to Non-metered</b>	<b>2. Non-metered to Metered</b>	Non-metered 6000 sf Lot	Non-metered 6000 sf Lot	Non-metered 8000 sf Lot	Non-metered 8000 sf Lot	Non-metered 14000 sf Lot	Non-metered 14000 sf Lot	<b>4. Metered to Non-metered</b>	<b>3. Metered to Metered</b>	1-inch Meter / 4 HCF per mo	\$0.13 NA NA	1-inch Meter / 22 HCF per mo	NA \$0.28 NA	1-inch Meter / 40 HCF per mo	NA NA \$0.42
<b>1. Non-metered to Non-metered</b>	<b>2. Non-metered to Metered</b>																
Non-metered 6000 sf Lot	Non-metered 6000 sf Lot																
Non-metered 8000 sf Lot	Non-metered 8000 sf Lot																
Non-metered 14000 sf Lot	Non-metered 14000 sf Lot																
<b>4. Metered to Non-metered</b>	<b>3. Metered to Metered</b>																
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1-inch Meter / 22 HCF per mo	NA \$0.28 NA																
1-inch Meter / 40 HCF per mo	NA NA \$0.42																
<b>Percent Change</b>	<table> <tr> <td><b>1. Non-metered to Non-metered</b></td><td><b>2. Non-metered to Metered</b></td></tr> <tr> <td>Non-metered 6000 sf Lot</td><td>Non-metered 6000 sf Lot</td></tr> <tr> <td>Non-metered 8000 sf Lot</td><td>Non-metered 8000 sf Lot</td></tr> <tr> <td>Non-metered 14000 sf Lot</td><td>Non-metered 14000 sf Lot</td></tr> <tr> <td><b>4. Metered to Non-metered</b></td><td><b>3. Metered to Metered</b></td></tr> <tr> <td>1-inch Meter / 4 HCF per mo</td><td>1% NA NA</td></tr> <tr> <td>1-inch Meter / 22 HCF per mo</td><td>NA 1% NA</td></tr> <tr> <td>1-inch Meter / 40 HCF per mo</td><td>NA NA 1%</td></tr> </table>	<b>1. Non-metered to Non-metered</b>	<b>2. Non-metered to Metered</b>	Non-metered 6000 sf Lot	Non-metered 6000 sf Lot	Non-metered 8000 sf Lot	Non-metered 8000 sf Lot	Non-metered 14000 sf Lot	Non-metered 14000 sf Lot	<b>4. Metered to Non-metered</b>	<b>3. Metered to Metered</b>	1-inch Meter / 4 HCF per mo	1% NA NA	1-inch Meter / 22 HCF per mo	NA 1% NA	1-inch Meter / 40 HCF per mo	NA NA 1%
<b>1. Non-metered to Non-metered</b>	<b>2. Non-metered to Metered</b>																
Non-metered 6000 sf Lot	Non-metered 6000 sf Lot																
Non-metered 8000 sf Lot	Non-metered 8000 sf Lot																
Non-metered 14000 sf Lot	Non-metered 14000 sf Lot																
<b>4. Metered to Non-metered</b>	<b>3. Metered to Metered</b>																
1-inch Meter / 4 HCF per mo	1% NA NA																
1-inch Meter / 22 HCF per mo	NA 1% NA																
1-inch Meter / 40 HCF per mo	NA NA 1%																

## ATTACHMENT A: RESIDENTIAL MONTHLY WATER BILL TABLES

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Table A-1  
Unmetered vs Metered Residential Bills, FY10 to FY11

Monthly Water Use HCF gpd	Unmetered						Metered						Changes in Total Bills					
	Lot Size = 6000			Lot Size = 8000			Lot Size = 14000			Any Lot Size			Unmetered Compared to Metered			% Difference		
	~ 12,000 accounts			~ 51,000 accounts			~ 29,000 accounts			Meter			\$ Difference			% Difference		
	First 6000 ft <sup>2</sup>	Next 100 ft <sup>2</sup>	Total	First 6000 ft <sup>2</sup>	Next 100 ft <sup>2</sup>	Total	First 6000 ft <sup>2</sup>	Next 100 ft <sup>2</sup>	Total	1-inch	Any Lot Size Quantity HCF	Total	6000	8000	14000	6000	8000	14000
0	\$22.87	\$0.228	\$22.87	\$22.87	\$0.228	\$22.87	\$22.87	\$0.228	\$22.87	\$13.51	\$0.610	\$13.51	-\$9.36	-\$13.92	-\$27.60	-41%	-51%	-67%
1	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$0.61	\$14.12	-\$8.75	-\$13.31	-\$26.99	-38%	-49%	-66%
2	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$1.22	\$14.73	-\$8.14	-\$12.70	-\$26.38	-36%	-46%	-64%
3	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$1.83	\$15.34	-\$7.53	-\$12.09	-\$25.77	-33%	-44%	-63%
4	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$2.44	\$15.95	-\$6.92	-\$11.48	-\$25.16	-30%	-42%	-61%
5	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$3.05	\$16.56	-\$6.31	-\$10.87	-\$24.55	-28%	-40%	-60%
6	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$3.66	\$17.17	-\$5.70	-\$10.26	-\$23.94	-25%	-37%	-58%
7	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$4.27	\$17.78	-\$5.09	-\$9.65	-\$23.33	-22%	-35%	-57%
8	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$4.88	\$18.39	-\$4.48	-\$9.04	-\$22.72	-20%	-33%	-55%
9	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$5.49	\$19.00	-\$3.87	-\$8.43	-\$22.11	-17%	-31%	-54%
10	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$6.10	\$19.61	-\$3.26	-\$7.82	-\$21.50	-14%	-29%	-52%
11	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$6.71	\$20.22	-\$2.65	-\$7.21	-\$20.89	-12%	-26%	-51%
12	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$7.32	\$20.83	-\$2.04	-\$6.60	-\$20.28	-9%	-24%	-49%
13	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$7.93	\$21.44	-\$1.43	-\$5.99	-\$19.67	-6%	-22%	-48%
14	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$8.54	\$22.05	-\$0.82	-\$5.38	-\$19.06	-4%	-20%	-46%
15	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$9.15	\$22.66	-\$0.21	-\$4.77	-\$18.45	-1%	-17%	-45%
16	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$9.76	\$23.27	\$0.40	-\$4.16	-\$17.84	2%	-15%	-43%
17	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$10.37	\$23.88	\$1.01	-\$3.55	-\$17.23	4%	-13%	-42%
18	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$10.98	\$24.49	\$1.62	-\$2.94	-\$16.62	7%	-11%	-40%
19	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$11.59	\$25.10	\$2.23	-\$2.33	-\$16.01	10%	-8%	-39%
20	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$12.20	\$25.71	\$2.84	-\$1.72	-\$15.40	12%	-6%	-37%
21	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$12.81	\$26.32	\$3.45	-\$1.11	-\$14.79	15%	-4%	-36%
22	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$13.42	\$26.93	\$4.06	-\$0.50	-\$14.18	18%	-2%	-34%
23	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$14.03	\$27.54	\$4.67	\$0.11	-\$13.57	20%	0%	-33%
24	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$14.64	\$28.15	\$5.28	\$0.72	-\$12.96	23%	3%	-32%
25	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$15.25	\$28.76	\$5.89	\$1.33	-\$12.35	26%	5%	-30%
26	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$15.86	\$29.37	\$6.50	\$1.94	-\$11.74	28%	7%	-29%
27	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$16.47	\$29.98	\$7.11	\$2.55	-\$11.13	31%	9%	-27%
28	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$17.08	\$30.59	\$7.72	\$3.16	-\$10.52	34%	12%	-26%
29	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$17.69	\$31.20	\$8.33	\$3.77	-\$9.91	36%	14%	-24%
30	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$18.30	\$31.81	\$8.94	\$4.38	-\$9.30	39%	16%	-23%
31	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$18.91	\$32.42	\$9.55	\$4.99	-\$8.69	42%	18%	-21%
32	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$19.52	\$33.03	\$10.16	\$5.60	-\$8.08	44%	20%	-20%
33	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$20.13	\$33.64	\$10.77	\$6.21	-\$7.47	47%	23%	-18%
34	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$20.74	\$34.25	\$11.38	\$6.82	-\$6.86	50%	25%	-17%
35	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$21.35	\$34.86	\$11.99	\$7.43	-\$6.25	52%	27%	-15%
36	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$21.96	\$35.47	\$12.60	\$8.04	-\$5.64	55%	29%	-14%
37	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$22.57	\$36.08	\$13.21	\$8.65	-\$5.03	58%	32%	-12%
38	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$23.18	\$36.69	\$13.82	\$9.26	-\$4.42	60%	34%	-11%
39	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$23.79	\$37.30	\$14.43	\$9.87	-\$3.81	63%	36%	-9%
40	\$22.87	\$0.00	\$22.87	\$22.87	\$4.56	\$27.43	\$22.87	\$18.24	\$41.11	\$13.51	\$24.40	\$37.91	\$15.04	\$10.48	-\$3.20	66%	38%	-8%

Table A-2  
Unmetered vs Metered Residential Bills, FY11 to FY12

Monthly Water Use HCF, gpd	Unmetered				Metered				Changes in Total Bills			
	Lot Size = 6000 ~ 12,000 accounts		Lot Size = 8000 ~ 51,000 accounts		Lot Size = 14000 ~ 29,000 accounts		Any Lot Size		Unmetered Compared to Metered		% Difference	
	First 6000 ft <sup>2</sup>	Next 100 ft <sup>2</sup>	First 6000 ft <sup>2</sup>	Next 100 ft <sup>2</sup>	First 6000 ft <sup>2</sup>	Next 100 ft <sup>2</sup>	Meter 1-inch	Quantity HCF	\$ Difference	Lot Size	\$ Difference	Lot Size
0	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$0.00	\$-11.35	6000	\$-16.03	14000
1	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$0.75	\$-10.60	6000	\$-15.28	14000
2	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$1.50	\$-9.85	6000	\$-14.53	14000
3	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$2.24	\$-9.11	6000	\$-13.79	14000
4	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$2.99	\$-8.36	6000	\$-13.04	14000
5	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$3.74	\$-7.61	6000	\$-12.29	14000
6	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$4.49	\$-6.86	6000	\$-11.54	14000
7	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$5.24	\$-6.11	6000	\$-10.79	14000
8	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$5.98	\$-5.37	6000	\$-10.05	14000
9	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$6.73	\$-4.62	6000	\$-9.30	14000
10	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$7.48	\$-3.87	6000	\$-8.55	14000
11	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$8.23	\$-3.12	6000	\$-7.80	14000
12	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$8.98	\$-2.37	6000	\$-7.05	14000
13	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$9.72	\$-1.63	6000	\$-6.31	14000
14	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$10.47	\$-0.88	6000	\$-5.56	14000
15	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$11.22	\$-0.13	6000	\$-4.81	14000
16	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$11.97	\$0.62	6000	\$-4.06	14000
17	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$12.72	\$1.37	6000	\$-3.31	14000
18	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$13.46	\$2.11	6000	\$-2.57	14000
19	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$14.21	\$2.86	6000	\$-1.82	14000
20	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$14.96	\$3.61	6000	\$-1.07	14000
21	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$15.71	\$4.36	6000	\$-0.32	14000
22	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$16.46	\$5.11	6000	\$0.43	14000
23	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$17.20	\$5.85	6000	\$1.17	14000
24	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$17.95	\$6.60	6000	\$1.92	14000
25	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$18.70	\$7.35	6000	\$2.67	14000
26	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$19.45	\$8.10	6000	\$3.42	14000
27	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$20.20	\$8.85	6000	\$4.17	14000
28	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$20.94	\$9.59	6000	\$4.91	14000
29	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$21.69	\$10.34	6000	\$5.66	14000
30	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$22.44	\$11.09	6000	\$6.41	14000
31	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$23.19	\$11.84	6000	\$7.16	14000
32	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$23.94	\$12.59	6000	\$7.91	14000
33	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$24.68	\$13.33	6000	\$8.65	14000
34	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$25.43	\$14.08	6000	\$9.40	14000
35	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$26.18	\$14.83	6000	\$10.15	14000
36	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$26.93	\$15.58	6000	\$10.90	14000
37	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$27.68	\$16.33	6000	\$11.65	14000
38	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$28.42	\$17.07	6000	\$12.39	14000
39	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$29.17	\$17.82	6000	\$13.14	14000
40	\$23.40	\$0.00	\$23.40	\$4.68	\$23.40	\$18.72	\$12.05	\$29.92	\$18.57	6000	\$13.89	14000

**Table A-3**  
**Unmetered vs Metered Residential Bills, FY13**

Monthly Water Use HCF	gpd	Lot Size = 6000 ~ 12,000 accounts				Lot Size = 8000 ~ 51,000 accounts				Lot Size = 14000 ~ 29,000 accounts				Metered Any Lot Size				Changes in Total Bills Unmetered Compared to Metered			
		First 6000 ft²	Next 100 ft²	Total	First 6000 ft²	Next 100 ft²	Total	First 6000 ft²	Next 100 ft²	Total	Meter 1-inch	Quantity HCF	Total	Unmetered			% Difference				
														\$	6000	8000	14000	6000	8000	14000	
																					\$
0	0	\$23.65	\$0.237	\$0.00	\$23.65	\$0.237	\$0.00	\$23.65	\$0.237	\$0.00	\$12.17	\$0.773	\$12.17	\$-11.48	\$16.22	\$-30.44	\$-49%	-57%	-71%		
1	25	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$0.00	\$12.17	\$12.94	\$-15.45	\$-29.67	-45%	-54%	-70%	
2	49	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$1.55	\$13.72	\$13.72	\$-9.93	\$-14.67	\$-28.89	-42%	-52%	-68%
3	74	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$2.32	\$14.49	\$14.49	\$-9.16	\$-13.90	\$-28.12	-39%	-49%	-66%
4	98	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$3.09	\$15.26	\$15.26	\$-8.39	\$-13.13	\$-27.35	-35%	-46%	-64%
5	123	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$3.87	\$16.04	\$16.04	\$-7.62	\$-12.36	\$-26.58	-32%	-44%	-62%
6	148	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$4.64	\$16.81	\$16.81	\$-6.84	\$-11.58	\$-25.80	-29%	-41%	-61%
7	172	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$5.41	\$17.58	\$17.58	\$-6.07	\$-10.81	\$-25.03	-26%	-38%	-59%
8	197	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$6.18	\$18.35	\$18.35	\$-5.27	\$-10.04	\$-24.26	-22%	-35%	-57%
9	221	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$6.96	\$19.13	\$19.13	\$-4.52	\$-9.26	\$-23.48	-19%	-33%	-55%
10	246	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$7.73	\$19.90	\$19.90	\$-3.75	\$-8.49	\$-22.71	-16%	-30%	-53%
11	271	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$8.50	\$20.67	\$20.67	\$-2.98	\$-7.72	\$-21.94	-13%	-27%	-51%
12	295	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$9.28	\$21.45	\$21.45	\$-2.20	\$-6.94	\$-21.16	-9%	-24%	-50%
13	320	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$10.05	\$22.22	\$22.22	\$-1.43	\$-6.17	\$-20.39	-6%	-22%	-48%
14	344	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$10.82	\$22.99	\$22.99	\$-0.66	\$-5.40	\$-19.62	-3%	-19%	-46%
15	369	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$11.60	\$23.77	\$23.77	\$0.12	\$-4.63	\$-18.85	0%	-16%	-44%
16	394	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$12.37	\$24.54	\$24.54	\$0.89	\$-3.85	\$-18.07	4%	-14%	-42%
17	418	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$13.14	\$25.31	\$25.31	\$1.66	\$-3.08	\$-17.30	7%	-11%	-41%
18	443	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$13.91	\$26.08	\$26.08	\$2.43	\$-2.31	\$-16.53	10%	-8%	-39%
19	467	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$14.69	\$26.86	\$26.86	\$3.21	\$-1.53	\$-15.75	14%	-5%	-37%
20	492	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$15.46	\$27.63	\$27.63	\$3.98	\$0.76	\$-14.98	17%	-3%	-35%
21	516	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$16.23	\$28.40	\$28.40	\$4.75	\$0.01	\$-14.21	20%	0%	-33%
22	541	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$17.01	\$29.18	\$29.18	\$5.53	\$0.79	\$-13.43	23%	3%	-32%
23	566	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$17.78	\$29.95	\$29.95	\$6.30	\$1.56	\$-12.66	27%	5%	-30%
24	590	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$18.55	\$30.72	\$30.72	\$7.07	\$2.33	\$-11.89	30%	8%	-28%
25	615	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$19.33	\$31.50	\$31.50	\$7.85	\$3.11	\$-11.12	33%	11%	-26%
26	639	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$20.10	\$32.27	\$32.27	\$8.62	\$3.88	\$-10.34	36%	14%	-24%
27	664	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$20.87	\$33.04	\$33.04	\$9.39	\$4.65	\$-9.57	40%	16%	-22%
28	689	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$21.64	\$33.81	\$33.81	\$10.16	\$5.42	\$-8.80	43%	19%	-21%
29	713	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$22.42	\$34.59	\$34.59	\$10.94	\$6.20	\$-8.02	46%	22%	-19%
30	738	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$23.19	\$35.36	\$35.36	\$11.71	\$6.97	\$-7.25	50%	25%	-17%
31	762	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$23.96	\$36.13	\$36.13	\$12.48	\$7.74	\$-6.48	53%	27%	-15%
32	787	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$24.74	\$36.91	\$36.91	\$13.26	\$8.52	\$-5.70	56%	30%	-13%
33	812	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$25.51	\$37.68	\$37.68	\$14.03	\$9.29	\$-4.93	59%	33%	-12%
34	836	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$26.28	\$38.45	\$38.45	\$14.80	\$10.06	\$-4.16	63%	35%	-10%
35	861	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$27.06	\$39.23	\$39.23	\$15.58	\$10.84	\$-3.39	66%	38%	-8%
36	885	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$27.83	\$40.00	\$40.00	\$16.35	\$11.61	\$-2.61	69%	41%	-6%
37	910	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$28.60	\$40.77	\$40.77	\$17.12	\$12.38	\$-1.84	72%	44%	-4%
38	935	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$29.37	\$41.54	\$41.54	\$17.89	\$13.15	\$-1.07	76%	46%	-3%
39	959	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$30.15	\$42.32	\$42.32	\$18.67	\$13.93	\$-0.29	79%	49%	-1%
40	984	\$23.65	\$0.00	\$23.65	\$23.65	\$4.74	\$28.39	\$28.39	\$23.65	\$18.96	\$42.61	\$12.17	\$30.92	\$43.09	\$43.09	\$19.44	\$14.70	\$0.48	82%	52%	1%

Table A-4  
Metered Residential Bills, FY11 - FY14

Monthly Water Use HCF gpd	Metered FY11			Metered FY12			Metered FY13			Metered FY 14			Annual Changes in Total Bills				
	Meter 1-inch	Quantity HCF	Total	Meter 1-inch	Quantity HCF	Total	Meter 1-inch	Quantity HCF	Total	Meter 1-inch	Quantity HCF	Total	FY11 to FY12		FY12 to FY13		FY13 to FY14
													FY11	FY12	FY13	FY14	
0	\$13.51	\$0.00	\$13.51	\$12.05	\$0.00	\$12.05	\$12.17	\$0.00	\$12.17	\$12.27	\$0.00	\$12.27	-\$1.46	\$0.12	\$0.10	-\$11%	1%
1	\$13.51	\$0.61	\$14.12	\$12.05	\$0.75	\$12.80	\$12.17	\$0.77	\$12.94	\$12.27	\$0.78	\$13.05	-\$1.32	\$0.15	\$0.11	-9%	1%
2	\$13.51	\$1.22	\$14.73	\$12.05	\$1.50	\$13.55	\$12.17	\$1.55	\$13.72	\$12.27	\$1.56	\$13.83	-\$1.18	\$0.17	\$0.12	-8%	1%
3	\$13.51	\$1.83	\$15.34	\$12.05	\$2.24	\$14.29	\$12.17	\$2.32	\$14.49	\$12.27	\$2.34	\$14.61	-\$1.05	\$0.20	\$0.12	-7%	1%
4	\$13.51	\$2.44	\$15.95	\$12.05	\$2.99	\$15.04	\$12.17	\$3.09	\$15.26	\$12.27	\$3.12	\$15.39	-\$0.91	\$0.22	\$0.13	-6%	1%
5	\$13.51	\$3.05	\$16.56	\$12.05	\$3.74	\$15.79	\$12.17	\$3.87	\$16.04	\$12.27	\$3.91	\$16.18	-\$0.77	\$0.25	\$0.14	-5%	2%
6	\$13.51	\$3.66	\$17.17	\$12.05	\$4.49	\$16.54	\$12.17	\$4.64	\$16.81	\$12.27	\$4.69	\$16.96	-\$0.63	\$0.27	\$0.15	-4%	2%
7	\$13.51	\$4.27	\$17.78	\$12.05	\$5.24	\$17.29	\$12.17	\$5.41	\$17.58	\$12.27	\$5.47	\$17.74	-\$0.49	\$0.30	\$0.16	-3%	2%
8	\$13.51	\$4.88	\$18.39	\$12.05	\$5.98	\$18.03	\$12.17	\$6.18	\$18.35	\$12.27	\$6.25	\$18.52	-\$0.36	\$0.32	\$0.16	-2%	2%
9	\$13.51	\$5.49	\$19.00	\$12.05	\$6.73	\$18.78	\$12.17	\$6.96	\$19.13	\$12.27	\$7.03	\$19.30	-\$0.22	\$0.34	\$0.17	-1%	2%
10	\$13.51	\$6.10	\$19.61	\$12.05	\$7.48	\$19.53	\$12.17	\$7.73	\$19.90	\$12.27	\$7.81	\$20.08	-\$0.08	\$0.37	\$0.18	0%	2%
11	\$13.51	\$6.71	\$20.22	\$12.05	\$8.23	\$20.28	\$12.17	\$8.50	\$20.67	\$12.27	\$8.59	\$20.86	\$0.06	\$0.40	\$0.19	0%	2%
12	\$13.51	\$7.32	\$20.83	\$12.05	\$8.98	\$21.03	\$12.17	\$9.28	\$21.45	\$12.27	\$9.37	\$21.64	\$0.20	\$0.42	\$0.20	1%	2%
13	\$13.51	\$7.93	\$21.44	\$12.05	\$9.72	\$21.77	\$12.17	\$10.05	\$22.22	\$12.27	\$10.15	\$22.42	\$0.33	\$0.45	\$0.20	2%	2%
14	\$13.51	\$8.54	\$22.05	\$12.05	\$10.47	\$22.52	\$12.17	\$10.82	\$22.99	\$12.27	\$10.93	\$23.20	\$0.47	\$0.47	\$0.21	2%	2%
15	\$13.51	\$9.15	\$22.66	\$12.05	\$11.22	\$23.27	\$12.17	\$11.60	\$23.77	\$12.27	\$11.72	\$23.99	\$0.61	\$0.52	\$0.22	3%	2%
16	\$13.51	\$9.76	\$23.27	\$12.05	\$11.97	\$24.02	\$12.17	\$12.37	\$24.54	\$12.27	\$12.50	\$24.77	\$0.75	\$0.55	\$0.23	3%	2%
17	\$13.51	\$10.37	\$23.88	\$12.05	\$12.72	\$24.77	\$12.17	\$13.14	\$25.31	\$12.27	\$13.28	\$25.55	\$0.89	\$0.55	\$0.24	4%	2%
18	\$13.51	\$10.98	\$24.49	\$12.05	\$13.46	\$25.51	\$12.17	\$13.91	\$26.08	\$12.27	\$14.06	\$26.33	\$1.02	\$0.57	\$0.24	4%	2%
19	\$13.51	\$11.59	\$25.10	\$12.05	\$14.21	\$26.26	\$12.17	\$14.69	\$26.86	\$12.27	\$14.84	\$27.11	\$1.16	\$0.59	\$0.25	5%	2%
20	\$13.51	\$12.20	\$25.71	\$12.05	\$14.96	\$27.01	\$12.17	\$15.46	\$27.63	\$12.27	\$15.62	\$27.89	\$1.30	\$0.62	\$0.26	5%	2%
21	\$13.51	\$12.81	\$26.32	\$12.05	\$15.71	\$27.76	\$12.17	\$16.23	\$28.40	\$12.27	\$16.40	\$28.67	\$1.44	\$0.65	\$0.27	5%	2%
22	\$13.51	\$13.42	\$26.93	\$12.05	\$16.46	\$28.51	\$12.17	\$17.01	\$29.18	\$12.27	\$17.18	\$29.45	\$1.58	\$0.67	\$0.28	6%	2%
23	\$13.51	\$14.03	\$27.54	\$12.05	\$17.20	\$29.25	\$12.17	\$17.78	\$29.95	\$12.27	\$17.96	\$30.23	\$1.71	\$0.70	\$0.28	6%	2%
24	\$13.51	\$14.64	\$28.15	\$12.05	\$17.95	\$30.00	\$12.17	\$18.55	\$30.72	\$12.27	\$18.74	\$31.01	\$1.85	\$0.72	\$0.29	7%	2%
25	\$13.51	\$15.25	\$28.76	\$12.05	\$18.70	\$30.75	\$12.17	\$19.33	\$31.50	\$12.27	\$19.53	\$31.80	\$1.99	\$0.74	\$0.30	7%	2%
26	\$13.51	\$15.86	\$29.37	\$12.05	\$19.45	\$31.50	\$12.17	\$20.10	\$32.27	\$12.27	\$20.31	\$32.58	\$2.13	\$0.77	\$0.31	7%	2%
27	\$13.51	\$16.47	\$29.98	\$12.05	\$20.20	\$32.25	\$12.17	\$20.87	\$33.04	\$12.27	\$21.09	\$33.36	\$2.27	\$0.80	\$0.32	8%	2%
28	\$13.51	\$17.08	\$30.59	\$12.05	\$20.94	\$32.99	\$12.17	\$21.64	\$33.81	\$12.27	\$21.87	\$34.14	\$2.40	\$0.82	\$0.32	8%	2%
29	\$13.51	\$17.69	\$31.20	\$12.05	\$21.69	\$33.74	\$12.17	\$22.42	\$34.59	\$12.27	\$22.65	\$34.92	\$2.54	\$0.85	\$0.33	8%	3%
30	\$13.51	\$18.30	\$31.81	\$12.05	\$22.44	\$34.49	\$12.17	\$23.19	\$35.36	\$12.27	\$23.43	\$35.70	\$2.68	\$0.87	\$0.34	8%	3%
31	\$13.51	\$18.91	\$32.42	\$12.05	\$23.19	\$35.24	\$12.17	\$23.96	\$36.13	\$12.27	\$24.21	\$36.48	\$2.82	\$0.90	\$0.35	9%	3%
32	\$13.51	\$19.52	\$33.03	\$12.05	\$23.94	\$35.99	\$12.17	\$24.74	\$36.91	\$12.27	\$24.99	\$37.26	\$2.96	\$0.92	\$0.36	9%	3%
33	\$13.51	\$20.13	\$33.64	\$12.05	\$24.68	\$36.73	\$12.17	\$25.51	\$37.68	\$12.27	\$25.77	\$38.04	\$3.09	\$0.95	\$0.36	9%	3%
34	\$13.51	\$20.74	\$34.25	\$12.05	\$25.43	\$37.48	\$12.17	\$26.28	\$38.45	\$12.27	\$26.55	\$38.82	\$3.23	\$0.97	\$0.37	9%	3%
35	\$13.51	\$21.35	\$34.86	\$12.05	\$26.18	\$38.23	\$12.17	\$27.06	\$39.23	\$12.27	\$27.34	\$39.61	\$3.37	\$1.00	\$0.38	10%	3%
36	\$13.51	\$21.96	\$35.47	\$12.05	\$26.93	\$38.98	\$12.17	\$27.83	\$40.00	\$12.27	\$28.12	\$40.39	\$3.51	\$1.02	\$0.39	10%	3%
37	\$13.51	\$22.57	\$36.08	\$12.05	\$27.68	\$39.73	\$12.17	\$28.60	\$40.77	\$12.27	\$28.90	\$41.17	\$3.65	\$1.05	\$0.40	10%	3%
38	\$13.51	\$23.18	\$36.69	\$12.05	\$28.42	\$40.47	\$12.17	\$29.37	\$41.54	\$12.27	\$29.68	\$41.95	\$3.78	\$1.07	\$0.40	10%	3%
39	\$13.51	\$23.79	\$37.30	\$12.05	\$29.17	\$41.22	\$12.17	\$30.15	\$42.32	\$12.27	\$30.46	\$42.73	\$3.92	\$1.10	\$0.41	11%	3%
40	\$13.51	\$24.40	\$37.91	\$12.05	\$29.92	\$41.97	\$12.17	\$30.92	\$43.09	\$12.27	\$31.24	\$43.51	\$4.06	\$1.12	\$0.42	11%	3%

Table A-5  
Non-metered Residential Bills, FY11 - FY14

Add Units No. sq ft	FY11			FY12			FY13			FY14			Annual Changes in Total Bills					
	First 6000 ft <sup>2</sup>	Next 100 ft <sup>2</sup>	Total	First 6000 ft <sup>2</sup>	Next 100 ft <sup>2</sup>	Total	First 6000 ft <sup>2</sup>	Next 100 ft <sup>2</sup>	Total	First 6000 ft <sup>2</sup>	Next 100 ft <sup>2</sup>	Total	\$ Difference			% Difference		
													FY11 to FY12	FY12 to FY13	FY13 to FY14	FY11 to FY12	FY12 to FY13	FY13 to FY14
0 6000	\$22.87	\$0.00	\$22.87	\$23.40	\$0.00	\$23.40	\$23.65	\$0.00	\$23.65	\$23.87	\$0.00	\$23.87	\$0.53	\$0.25	\$0.22	2%	1%	1%
5 6500	\$22.87	\$1.14	\$24.01	\$23.40	\$1.17	\$24.57	\$23.65	\$1.19	\$24.84	\$23.87	\$1.20	\$25.07	\$0.56	\$0.26	\$0.23	2%	1%	1%
10 7000	\$22.87	\$2.28	\$25.15	\$23.40	\$2.34	\$25.74	\$23.65	\$2.37	\$26.02	\$23.87	\$2.39	\$26.26	\$0.59	\$0.28	\$0.24	2%	1%	1%
15 7500	\$22.87	\$3.42	\$26.29	\$23.40	\$3.51	\$26.91	\$23.65	\$3.56	\$27.21	\$23.87	\$3.59	\$27.46	\$0.62	\$0.29	\$0.25	2%	1%	1%
20 8000	\$22.87	\$4.56	\$27.43	\$23.40	\$4.68	\$28.08	\$23.65	\$4.74	\$28.39	\$23.87	\$4.78	\$28.65	\$0.65	\$0.31	\$0.26	2%	1%	1%
25 8500	\$22.87	\$5.70	\$28.57	\$23.40	\$5.85	\$29.25	\$23.65	\$5.93	\$29.58	\$23.87	\$5.98	\$29.85	\$0.68	\$0.32	\$0.27	2%	1%	1%
30 9000	\$22.87	\$6.84	\$29.71	\$23.40	\$7.02	\$30.42	\$23.65	\$7.11	\$30.76	\$23.87	\$7.17	\$31.04	\$0.71	\$0.34	\$0.28	2%	1%	1%
35 9500	\$22.87	\$7.98	\$30.85	\$23.40	\$8.19	\$31.59	\$23.65	\$8.30	\$31.95	\$23.87	\$8.37	\$32.24	\$0.74	\$0.36	\$0.29	2%	1%	1%
40 10000	\$22.87	\$9.12	\$31.99	\$23.40	\$9.36	\$32.76	\$23.65	\$9.48	\$33.13	\$23.87	\$9.56	\$33.43	\$0.77	\$0.37	\$0.30	2%	1%	1%
45 10500	\$22.87	\$10.26	\$33.13	\$23.40	\$10.53	\$33.93	\$23.65	\$10.67	\$34.26	\$23.87	\$10.76	\$34.63	\$0.80	\$0.38	\$0.31	2%	1%	1%
50 11000	\$22.87	\$11.40	\$34.27	\$23.40	\$11.70	\$35.10	\$23.65	\$11.85	\$35.50	\$23.87	\$11.95	\$35.82	\$0.83	\$0.40	\$0.32	2%	1%	1%
55 11500	\$22.87	\$12.54	\$35.41	\$23.40	\$12.87	\$36.27	\$23.65	\$13.04	\$36.69	\$23.87	\$13.15	\$37.02	\$0.86	\$0.42	\$0.33	2%	1%	1%
60 12000	\$22.87	\$13.68	\$36.55	\$23.40	\$14.04	\$37.44	\$23.65	\$14.22	\$37.87	\$23.87	\$14.34	\$38.21	\$0.89	\$0.43	\$0.34	2%	1%	1%
65 12500	\$22.87	\$14.82	\$37.69	\$23.40	\$15.21	\$38.61	\$23.65	\$15.41	\$39.06	\$23.87	\$15.54	\$39.41	\$0.92	\$0.45	\$0.35	2%	1%	1%
70 13000	\$22.87	\$15.96	\$38.83	\$23.40	\$16.38	\$39.78	\$23.65	\$16.59	\$40.24	\$23.87	\$16.73	\$40.60	\$0.95	\$0.46	\$0.36	2%	1%	1%
75 13500	\$22.87	\$17.10	\$39.97	\$23.40	\$17.55	\$40.95	\$23.65	\$17.78	\$41.43	\$23.87	\$17.93	\$41.80	\$0.98	\$0.47	\$0.37	2%	1%	1%
80 14000	\$22.87	\$18.24	\$41.11	\$23.40	\$18.72	\$42.12	\$23.65	\$18.96	\$42.61	\$23.87	\$19.12	\$42.99	\$1.01	\$0.49	\$0.38	2%	1%	1%
85 14500	\$22.87	\$19.38	\$42.25	\$23.40	\$19.89	\$43.29	\$23.65	\$20.15	\$43.80	\$23.87	\$20.32	\$44.19	\$1.04	\$0.51	\$0.39	2%	1%	1%
90 15000	\$22.87	\$20.52	\$43.39	\$23.40	\$21.06	\$44.46	\$23.65	\$21.33	\$44.98	\$23.87	\$21.51	\$45.38	\$1.07	\$0.52	\$0.40	2%	1%	1%
95 15500	\$22.87	\$21.66	\$44.53	\$23.40	\$22.23	\$45.63	\$23.65	\$22.52	\$46.17	\$23.87	\$22.71	\$46.58	\$1.10	\$0.54	\$0.41	2%	1%	1%
100 16000	\$22.87	\$22.80	\$45.67	\$23.40	\$23.40	\$46.80	\$23.65	\$23.70	\$47.35	\$23.87	\$23.90	\$47.77	\$1.13	\$0.55	\$0.42	2%	1%	1%
105 16500	\$22.87	\$23.94	\$46.81	\$23.40	\$24.57	\$47.97	\$23.65	\$24.89	\$48.54	\$23.87	\$25.10	\$48.97	\$1.16	\$0.56	\$0.43	2%	1%	1%
110 17000	\$22.87	\$25.08	\$47.95	\$23.40	\$25.74	\$49.14	\$23.65	\$26.07	\$49.72	\$23.87	\$26.29	\$50.16	\$1.19	\$0.58	\$0.44	2%	1%	1%
115 17500	\$22.87	\$26.22	\$49.09	\$23.40	\$26.91	\$50.31	\$23.65	\$27.26	\$50.91	\$23.87	\$27.49	\$51.36	\$1.22	\$0.59	\$0.45	2%	1%	1%
120 18000	\$22.87	\$27.36	\$50.23	\$23.40	\$28.08	\$51.48	\$23.65	\$28.44	\$52.09	\$23.87	\$28.68	\$52.55	\$1.25	\$0.61	\$0.46	2%	1%	1%
125 18500	\$22.87	\$28.50	\$51.37	\$23.40	\$29.25	\$52.65	\$23.65	\$29.63	\$53.28	\$23.87	\$29.88	\$53.75	\$1.28	\$0.63	\$0.47	2%	1%	1%
130 19000	\$22.87	\$29.64	\$52.51	\$23.40	\$30.42	\$53.82	\$23.65	\$30.81	\$54.46	\$23.87	\$31.07	\$54.94	\$1.31	\$0.64	\$0.48	2%	1%	1%
135 19500	\$22.87	\$30.78	\$53.65	\$23.40	\$31.59	\$54.99	\$23.65	\$32.00	\$55.65	\$23.87	\$32.27	\$56.14	\$1.34	\$0.65	\$0.49	2%	1%	1%
140 20000	\$22.87	\$31.92	\$54.79	\$23.40	\$32.76	\$56.16	\$23.65	\$33.18	\$56.83	\$23.87	\$33.46	\$57.33	\$1.37	\$0.67	\$0.50	3%	1%	1%
145 20500	\$22.87	\$33.06	\$55.93	\$23.40	\$33.93	\$57.33	\$23.65	\$34.37	\$58.02	\$23.87	\$34.66	\$58.53	\$1.40	\$0.68	\$0.51	3%	1%	1%
150 21000	\$22.87	\$34.20	\$57.07	\$23.40	\$35.10	\$58.50	\$23.65	\$35.55	\$59.20	\$23.87	\$35.85	\$59.72	\$1.43	\$0.70	\$0.52	3%	1%	1%
155 21500	\$22.87	\$35.34	\$58.21	\$23.40	\$36.27	\$59.67	\$23.65	\$36.74	\$60.39	\$23.87	\$37.05	\$60.92	\$1.46	\$0.71	\$0.53	3%	1%	1%
160 22000	\$22.87	\$36.48	\$59.35	\$23.40	\$37.44	\$60.84	\$23.65	\$37.92	\$61.57	\$23.87	\$38.24	\$62.11	\$1.49	\$0.73	\$0.54	3%	1%	1%
165 22500	\$22.87	\$37.62	\$60.49	\$23.40	\$38.61	\$62.01	\$23.65	\$39.11	\$62.76	\$23.87	\$39.44	\$63.31	\$1.52	\$0.74	\$0.55	3%	1%	1%
170 23000	\$22.87	\$38.76	\$61.63	\$23.40	\$39.78	\$63.18	\$23.65	\$40.29	\$63.94	\$23.87	\$40.63	\$64.50	\$1.55	\$0.76	\$0.56	3%	1%	1%
175 23500	\$22.87	\$39.90	\$62.77	\$23.40	\$40.95	\$64.35	\$23.65	\$41.48	\$65.13	\$23.87	\$41.83	\$65.70	\$1.58	\$0.78	\$0.57	3%	1%	1%
180 24000	\$22.87	\$41.04	\$63.91	\$23.40	\$42.12	\$65.52	\$23.65	\$42.66	\$66.31	\$23.87	\$43.02	\$66.89	\$1.61	\$0.79	\$0.58	3%	1%	1%
185 24500	\$22.87	\$42.18	\$65.05	\$23.40	\$43.29	\$66.69	\$23.65	\$43.85	\$67.50	\$23.87	\$44.22	\$68.09	\$1.64	\$0.81	\$0.59	3%	1%	1%
190 25000	\$22.87	\$43.32	\$66.19	\$23.40	\$44.46	\$67.86	\$23.65	\$45.03	\$68.68	\$23.87	\$45.41	\$69.28	\$1.67	\$0.82	\$0.60	3%	1%	1%
195 25500	\$22.87	\$44.46	\$67.33	\$23.40	\$45.63	\$69.03	\$23.65	\$46.22	\$69.87	\$23.87	\$46.61	\$70.48	\$1.70	\$0.83	\$0.61	3%	1%	1%
200 26000	\$22.87	\$45.60	\$68.47	\$23.40	\$46.80	\$70.20	\$23.65	\$47.40	\$71.05	\$23.87	\$47.80	\$71.67	\$1.73	\$0.85	\$0.62	3%	1%	1%

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## Appendix H: Capital Improvement Program Summary

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**Water System Five-Year Funding Plan**

The funding plan for the Water Division's next five years of budgeted expenditures is summarized in this section. For sound financial operation of the City's water system, the revenues generated must be sufficient to meet the revenue requirements or cash obligations of the system. Revenue requirements include operations and maintenance (O&M) expenses, capital improvement program (CIP) expenditures, principal and interest payments on existing debt, reserves and other obligations, including debt service coverage ratios. The total budget for the Water Enterprise Fund is estimated at \$568.7 million for the period of FY 2013 through FY 2017.

**Operation and Maintenance Expenses**

O&M expenditures include the cost of operating and maintaining water supply, treatment, storage, recharge and distribution facilities and administering a water conservation program. O&M expenses also include the costs of providing technical services such as water quality testing services and other administrative costs of the water system such as meter reading and billings. These costs are a normal obligation of the system, and are met from operating revenues as they are incurred. They enable the Division to deliver water that meets all current State and Federal quality mandates and to satisfy water supply needs for fire protection and residential, commercial, industrial, municipal, irrigation and school customers.

The comprehensive forecasted annual O&M expenditures for the study are based upon the Water Division's budgeted five-year expenditure plan, which incorporates anticipated changes in operations and the effect of inflation in future years. The Division conservatively uses an inflationary factor of three percent in projecting most O&M expenditures, except for employee services which is at two percent. Also, additional staff and equipment for operational imperatives have been included. The total estimated O&M for the study period of FY 2013 to FY 2017 is \$254.8 million.

**Water Capital Improvement Program**

The City has developed a comprehensive Water Capital Improvement Program (CIP) to address current and future water system needs. The total estimated water CIP for the study period of FY 2013 to FY 2017 is \$409.5 million. These projected costs include a three percent (3%) annual inflation factor due to anticipated increases in construction costs over time. This inflation rate is a conservative estimate and ensures that the City has adequate resources identified to complete the necessary projects.

The CIP is to be funded through a combination of system revenues and bond financing. The CIP funding sources include the following:

1. "Pay-as-you-go" Revenues – Cash financing of capital improvements is the direct non-debt financing of Water System financed project costs. It is anticipated that cash financing will consist of revenues from the Water Enterprise Fund including customer service revenues, interest earnings, reimbursements, resources from prior year and other miscellaneous revenues.
2. Debt Financing – These consist of revenue bonds that are limited obligations of the Division payable from revenues of the Water System after payment of operations and maintenance expenditures. The improvements to the Water System that are anticipated to be debt funded are to be funded through a series of three bond sales in 2013, 2015 and 2017.

The Division will continue to pursue grant and low-interest loan opportunities, but for purposes of this study, no revenues were assumed from these sources.

The Water Division also manages and implements a capital improvement program related to new development. Such capital improvements are undertaken as new development occurs and are funded entirely from connection and impact fees. For this reason, capital improvements relating to new development are not discussed below and are not included in the Water Division's projected operating results contained herein.

Anticipated capital improvements expenditures fall under two major categories:

1. Projects that replace or rehabilitate existing water system delivery components. This is accomplished through projects that:
  - a. Improve the reliability of the City's 1,800-mile network of pipes and transmission mains through the ongoing replacement of aging and leaking facilities.
  - b. Repair or replace aging pump stations, fire hydrants, valves, meters, storage tanks, telemetry system and other facilities.
2. Construction of new water infrastructure to meet population growth demands and satisfy water quality needs. The primary justifications for the system expansion projects included in the CIP are based on the following:
  - a. **Metropolitan Water Resources Management Plan** - The realization in the 1990's that the City's groundwater supply was susceptible to contamination and the continuing depletion of the aquifer due to extraction led the City to begin planning for more reliable water supplies. In 1996 the City adopted a Metropolitan Water Resources Management Plan (the "Metropolitan Water Plan") in conjunction with other stakeholders in the City's geographic area and groundwater basin. Principal objectives of ongoing update to the Metropolitan Water Plan include maximizing use of available surface water and balancing the City's groundwater by 2025, which is the end of plan year for the City's current general plan. The City is currently in the initial stages of preparing a 2035 General Plan Update.

In addition, State law requires most water agencies, including the City, to develop an urban water management plan (the "Urban Water Management Plan" and, together with the Metropolitan Water Plan, the "Water Management Plans"). The most recent Urban Water Management Plan was prepared in 2008 and contains projections of future water supply and demand under various scenarios. Projections are developed in five year increments through 2025, and in some cases beyond.

Both Water Management Plans contain significant demand management and conservation facets as well as the increased use of recycled water for non-potable uses. The current plans include a combination of treated surface water and groundwater, more efforts towards conservation, construction of conveyance pipelines to move water through the Fresno Metropolitan Area, the development of additional recharge operations, and the utilization of raw, non-potable surface water to irrigate large turf facilities such as parks, golf courses and cemeteries. Additional components of the Water Management Plans are construction of the Southeast Surface Water Treatment Plant (SWTP) and expansion of the existing Northeast SWTP. The use of raw surface and recycled non-potable water is not funded in this five-year financial plan.

The consequences of NOT Implementing Metropolitan Water Plan supply project components include:

- Groundwater pumping will continue to exceed groundwater recharge, resulting in the significant "mining" of this resource.
- Groundwater levels will continue to decline at an average rate of 1.5 feet per year, requiring costly deepening of pumps and subsequently reduced production.
- Shallow municipal wells will become inoperable due to their limited depths.
- The use of available surface water supplies will remain underutilized.
- The pending promulgation of a maximum contaminant level for TCP may require the shutdown of as many as 37 municipal wells, or the delivery of the contaminated water with customer notification.

- The pending promulgation of a maximum contaminant level for Chromium IV (Cr6) may require the shutdown of as many as 37 municipal wells, or the delivery of the contaminated water with customer notification.
  - Loss of wells to TCP and/or Cr6 would mean that there would be enough unimpaired water resources to meet peak demands or fire flow until alternatives could be implemented. The TCP issue would impact mainly the southeast region of the City. Cr6 would impact enough wells to affect the entire City.
  - Without the Metropolitan Water Plan projects the City will no longer be able to demonstrate its compliance of the Water Code, Subdivision Map Act, and California Environmental Quality Act (CEQA), ensuring a sufficient water supply to meet projected water demands.
  - The City will be open to legal challenges for not implementing its Urban Water Management Plan projects.
  - The 2025 General Plan and pending 2035 General Plan will not be defensible of having the ability to meet projected water demands, halting development in the City.
- b. **Potential 1,2,3-Trichloropropane (TCP) Regulations** - TCP has been used as a paint or varnish remover, a cleaning and degreasing agent, and in the production of pesticides. TCP does not contaminate soil. Instead, it leaks down into groundwater and settles at the bottom of the ground water reservoir because TCP is denser than water. This makes TCP harder to remove from groundwater. TCP is recognized in California as a human carcinogen, and extensive animal studies have shown that it causes cancer. As of now, only the state of California has any regulation on TCP. Even here, it is only viewed as an unregulated contaminant that should be monitored with a notification level of 0.005 ppb (parts per billion) in groundwater. On a federal scale, there is no MCL (maximum concentration level) for this contaminant. In a new drinking water project that was proposed by the US Environmental Protection Agency (EPA), TCP is one of sixteen chemicals that are being considered for regulation. The current estimate for promulgation of the new MCL is sometime within the next 2-5 years.

In the Fresno Water System, there are a total of 80 wells with detections of TCP. Some of these are 2-well sites with both wells impacted. Most of the wells are in Southeast Fresno. About 35 of the 80 wells meet or exceed the notification level of 0.005 ppb. If just the 35 active wells that are at or exceed the notification level were shutdown, the estimated lost production would be sixty-three (63) million gallons per day (MGD). If all 80 wells were impacted and thus shutdown, 125 MGD in water production would be lost. Consequences of well shutdowns include:

- Inability to provide water service at the guaranteed 35 psi at the meter.
  - Potential water rationing will be required to maintain some semblance of system operation. This would include no outdoor watering.
  - Not being able to meet historic peak hour or maximum day demands, including fire flows
  - Implementation of a building moratorium.
- c. **Potential Chromium-6 (Cr-6) Regulations** - At a low level, Cr-6 is found naturally occurring in drinking water whose presence is in geologic formations throughout the State. Cr-6 also has industrial uses such as in the manufacturing of textile dyes, wood preservation, leather tanning and anti-corrosion coatings. Cr-6 was made infamous by the court case and subsequent movie about Erin Brockovich's successful lawsuit against a major point source contaminator. The potential health risk of Cr-6 in drinking water is a growing concern in many communities and at the national level, there is not yet enough scientific evidence to confirm the actual risk or to determine at what level of contamination it occurs. There continues to be uncertainty in the scientific community whether or not Cr-6 can cause cancer when ingested at levels found in drinking water. Current scientific evidence indicates that Cr-6 is likely to be much more toxic when inhaled than when

ingested. Although a drinking water standard has been established, long-term human health effects from consuming water containing more than 50 mg/L of hexavalent chromium have not been identified.

The City has been made aware of proposed Federal regulations that will establish an allowable MCL for Cr-6. There is not a current MCL for Cr-6; however the public health goal is 0.02 µg/L. When the Environmental Protection Agency sets a MCL, it is close to or at the stated public health goal. This projected MCL for Cr-6 could impact up to 187 wells throughout the City. The current estimated timeline for promulgation of an MCL for Cr-6 is 2-5 years.

### **Proposed Capital Improvements**

The following is a list of projects the Water Division proposes to undertake as part of the Water Management Plans discussed above. The total cost of these projects is estimated at \$409.5 million for the FY2013 to FY 2017 five-year planning period.

**Water Storage Facilities (approximately \$13.8 million)** - As development continues along with the transition from groundwater to surface water in Fresno, the need for storage tanks has become imperative. Two storage facilities in the Fresno area are planned, with respective capacities of two and three million gallons to address fire flow requirements and peak summertime water usage.

- **T-2 (2 MG Tank in Southeast Fresno at T-1 Site)** - This project is for the construction of a long planned second 2 million gallon storage tank at the existing tank facility in southeast Fresno, just east of Clovis Ave and south of the California Avenue alignment. Also included in this project is the expansion of the existing operations building to house the associated booster pumps. This tank will be used to meet difficult maximum summertime flows due to poor yielding wells in this area. Compounding the issue of water delivery in this area is contamination of the groundwater by nitrates from various sources and pesticides from agricultural applications. Design is scheduled for FY 2013 with construction in FY 2014 (\$4.1 million).
- **T-4 (3 MG Tank in Downtown)** - A three-million-gallon water storage tank is required in the downtown area to increase water production and to offset lost production from closed wells, which have reached the end of their useful production life. The water storage tank is necessary to increase peak hour water production and provide adequate fire suppression capacity. Numerous downtown redevelopment projects have increased water and fire flow demands, without upgrades to improve water system infrastructure. Total cost of the project is estimated at \$9.7 million.

### **80 Million Gallon Per Day (MGD) Southeast Surface Water Treatment Facility (SE SWTF) and Related Transmission Pipelines (approximately \$283.6 million):**

- **80 MGD SE SWTF** - This project is recommended in Southeast Fresno as portions of this area have a problematic groundwater supply due to hydrologic difficulties and/or contamination (see TCP). In anticipation of future water supply demands plus the balancing of groundwater and surface water in these areas, a new treatment facility must be constructed. A surface water treatment plant, which will be supplied from current water entitlements, will provide the solution to increased demands as well as supplying a significant amount of water throughout the southern portion of the City. Land acquisition and design costs have been made or encumbered in prior bond funding. The total cost for construction is \$230.3 million (includes \$3.7 million to close out the project in FY 2018).
- **Transmission Pipelines** - These water mains are to be constructed in association with the Southeast Surface Treatment Plant (SE SWTP). As part of the Metropolitan Water Plan, preliminary transmission pipeline sizing and feasibility work indicate large diameter pipes (48", 36", 24" and 16") are required to properly convey treated water to the surrounding service area from the proposed SE SWTP facility. The large flows discharged

from the plant will be utilized not only immediately adjacent to the plant but also several miles away. Effectively moving such large volumes of water away from the plant requires large diameter pipelines. It is anticipated these project appropriations will be used to construct the necessary pipelines through City contracts and reimbursement agreements with developers that build along the pipeline alignment. The total cost for construction is \$53.3 million.

**Water Main Renewal** – Historically the Water Division has replaced pipe on the basis of repeated failure or if it shows a history of leaks and ruptures. The historical budget for planned pipeline replacement has been \$2.5-million/year. The Water System current distribution system consists of over 1,780 miles of pipeline in diameters ranging from 4-inches to 60-inches. Thirty percent (30%) of the existing system is over 50-years old and four percent (4%) is over 70-years old. As a part of the Utility Advisory Committee (UAC) rate study process, a preliminary analysis of life-cycle replacement was prepared in response to concern by the UAC. In order to implement a lifecycle planned replacement program of approximately 70-years the Division would need to ramp up over the next 5-years to an annual program of \$25-million/year, a 90-year program would require an annual appropriation for replacement of \$20-million/year. The currently proposed 5-year CIP rate plan includes an annual appropriation for planned replacement of \$8-million/year which represents over 40 miles of water main. This is a significant increase; however it does not meet the actual need. Historic data shows that due to ancillary damage to adjacent infrastructure, public and private property, catastrophic failure has historically cost three to five times as much as planned replacement. This means that either the annual appropriation amount will need to be significantly increased in the future, or a major financed CIP will need to be implemented to address the continued accumulation of pipeline that has exceeded its serviceable lifecycle. The continued neglect to address this issue could result in a situation where the cost of catastrophic failure exceeds the reasonable amount of rates that can be applied to pipeline replacement and maintain services. Total cost: \$55.7 million.

**Water Well Construction** – This project is to fund the construction of approximately thirty-six (36) new and replacement water wells. New wells are required to meet increasing demands for water and to accommodate growth in the City. Wells generally need replacing due to contamination, structural failure, non-compliance with modern well construction standards or sand/mineral production. Cost components typically include: land acquisition, drilling a production well, pump, motor and pedestal, flow meters, piping, electrical panels and controls, building, chlorine injection equipment, perimeter walls, landscaping, street improvements, driveways and SCADA equipment. Total cost: \$27.5 million.

**City Recharge Basins** - This targeted recharge program will provide additional reliable water sources by expanding three to four City owned and operated recharge sites throughout the city. Shallow low-maintenance recharge basins will be constructed and operated year-round (utilizing water delivered via the Fresno Irrigation District) by Water Division staff. This project will specifically target areas of town that lack developed recharge authorized Fresno Metropolitan Flood Control District (FMFCD) basins. Vacant parcels will be investigated for viable recharge, and lease agreements or land purchases will be acquired from property owners. It has been proven that groundwater recharge significantly reduces the impact of pumping from the local aquifer. Also, nitrate problems, which continue to contaminate wells and require significant capital dollars to treat, are more cost-effectively remediated through septic tank removal and the utilization of a recharge program. Total cost: \$7.1 million.

**Downtown Water System Upgrades** - The Water Division is currently designing downtown water supply improvements to support existing developments and ongoing redevelopment activities. These improvements include a 3MG water storage tank with booster facility and a large diameter transmission water main to import water from West Fresno to Downtown. As these improvements become operational, additional improvements to the existing distribution system are needed to convey water from the tank site to areas of redevelopment. The existing water mains have been in use in excess of 50 years and have reached the end of their useful life. Additionally, a number of the distribution mains are undersized by current industry standards to support necessary fire flows for new development. This work will focus on replacing 12-inch main and smaller that is typically located within alleys and relocating to street right-of-ways in coordination with downtown development activity. Total cost: \$4.1 million.

**Water Main Extension & Dead-End Elimination** - Water main extensions provide for enhancement of water flow and pressure for varying demands throughout the City's service area. Dead-end elimination (or gap closure) results in looping of inefficient distribution areas; redundancy of water supply in the event of main breaks or shutdown for numerous reasons; improved water quality and fire flow capacity and reduced need for flushing and maintenance. It also enhances compliance with the Coliform Compliance Rule, improves the level of customer service and reduces on-going costs. Total cost: \$7.4 million

**Miscellaneous Projects (approximately \$22.2 million)** - The City will undertake numerous small projects to maintain the useful operation of the Water System. These projects include are water well and pump rehabilitations, telemetry system improvements, Aquifer Storage and Recovery (ASR) feasibility study, source water protection and other miscellaneous projects.

### **Debt Service Requirements**

The total funding for debt service over the five-year study period is \$130.7 million. The amount budgeted for the existing 2003 Water Revenue Bonds and the two 2010 Water Revenue Bonds, including the refunding of the 1998 bonds, is continued at \$69.5 million. The proposed debt service for the 2014 and 2016 bond issuances is added for \$50.7 million. The on-going loan repayments for the Proposition 44 Agricultural Drainage Loan Program (ADLP), Proposition 82 (ADLP) and the two State Safe Drinking Water State Revolving Loans approved in FY 2009 for Disinfection Building Construction and Enterprise Canal Improvements are budgeted per State schedules at \$1.6 million. The repayment to FID for the second Prop 44 loan is continued at \$1.0 million.

In addition, the first year payment of \$1.3 million for the \$51.4 million State No-Interest Loan which was approved in June 2011 for the single family residential meter project is anticipated in FY 2014. A full year will be \$2.6 million, starting in FY 2014 for a total of \$9.0 million.

An appropriated reserve for the Proposition 82 Loan Program of \$350,000, as required by the State, will be carried over in the Operating Fund.

### **Reserves**

The City requires adequate cash reserves to meet operating, capital, and debt service requirements. Operating reserves may be used to meet ongoing cash flow requirements as well as emergency requirements. The capital reserve is similar in function to the operating reserve, but it is a reserve for capital expenses. Debt reserves provide protection from defaulting on annual debt service payments in times of financial difficulty. One year of debt service payments is required in reserve, so each time the City issues new bonds, additional proceeds are added to the debt reserves.



## Appendix I: Backflow Program Fee Update

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**DEPARTMENT OF PUBLIC UTILITIES  
WATER DIVISION**

**Backflow Prevention Program Fee**

**MFS Page #  
58**

On June 21, 2012, the City Council adopted Ordinance No. 2012-11 which requires water customers with backflow prevention devices to obtain annual certified inspections and operational tests. The cost of testing and maintenance will be the responsibility of the water customer and they will be required to send in the certification paperwork to the Water Division. The Water Division is proposing to amend the MFS to eliminate all the testing and repair fees and implement a Backflow Prevention Program Fee. This fee would cover the regulatory requirements to administer the program, maintain test records and conduct surveys. This includes costs for field and clerical staff, program supervision, equipment and overhead.

Description of Cost	Annual Hours	Backflow Percentage of Hours	Backflow Hours
Senior Administrative Clerk	2,080	0.50	1,040
Staff Assistant	2,080	0.25	520
Cross Connection Control Technician	2,080	1.00	2,080
Water System Operator II	2,080	0.25	520
Water System Supervisor	2,080	0.25	520
<b>Labor Subtotal</b>			
1 Ton Pick-Up	2,080	1.25	2,600
<b>Equipment Sub-Total</b>			
Admin OH-Water Div			
Admin OH-Fixed Charges/ISF			
<b>Admin OH Subtotal</b>			
<b>TOTAL</b>			

**Number of  
Assemblies  
Annual Fee  
Monthly Fee**

Current-FY2013	
Billing Rate	Total Cost
22.69	23,597.60
26.86	13,967.20
34.78	72,342.40
33.73	17,539.60
49.68	25,833.60
	<b>153,280.40</b>
11.00	28,600.00
	<b>28,600.00</b>
31.52%	48,313.98
40.32%	61,802.66
	<b>110,116.64</b>
	<b>291,997.04</b>
	<b>8,100</b>
	<b>36.05</b>
	<b>3.00</b>

**CITY OF FRESNO  
MASTER FEE SCHEDULE  
AMNEDMENT SUMMARY**

**DEPARTMENT OF PUBLIC UTILITIES  
WATER DIVISION**

The Department of Public Utilities Water Division is proposing the elimination of the Backflow Prevention, Service Inspection and Maintenance Fees and establishing the new Backflow Prevention Program Fee effective January 1, 2013. The City Council adopted Ordinance No. 2012-11 which requires water customers with backflow prevention devices to obtain annual certified inspections and operational tests on their own. The new fee would cover the regulatory requirements to administer the program, maintain test records and conduct surveys.

**GENERAL RECREATION FEES SECTION**

Fee Description	Current	New	MFS Page #	Justification Page #
<b>Backflow Prevention, Service Inspection and Maintenance</b>				
<b>Double-check and/or pressure vacuum breaker assemblies (per month):</b>			154	
3/4- and 1-inch	6.70	Delete		
1-1/4/, 1-1/2-, and 2-inch	8.92	Delete		
2-1/2-, 3-, and 4-inch	17.83	Delete		
6- and 8-inch	26.73	Delete		
10-inch	44.57	Delete		
<b>Reduced pressure principle assemblies (per month)</b>			154	
3/4-inch	6.70	Delete		
1-inch	8.92	Delete		
1-1/4-inch	11.12	Delete		
1-1/2-inch	13.42	Delete		
2-inch	15.62	Delete		
4-inch	17.83	Delete		
6-inch	26.73	Delete		
8-inch	35.65	Delete		
10-inch	53.48	Delete		
<b>Backflow Prevention Program Fee</b>	New			
Per assembly/per month		3.00		